



**CONESTOGA-ROVERS
& ASSOCIATES**

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November 13, 2013

Reference No. 038443

Ms. Leslie Patterson
 Remedial Project Manager
 United States Environmental Protection Agency
 Region V
 77 West Jackson Boulevard
 Mail Code SR-6J
 Chicago, Illinois 60604

Dear Ms. Patterson:

Re: Wetland Delineation Report
 South Dayton Dump and Landfill Site
City of Dayton, Montgomery County, Ohio

Conestoga-Rovers & Associates (CRA) completed a wetland delineation and assessment at the South Dayton Dump and Landfill Site (Site) in accordance with the Phase 1A Groundwater and Data Gap Investigation Work Plan dated May 10, 2013.

This report discusses the wetland delineation methodology and provides the results of CRA's field investigation. It includes copies of the United States Geologic Survey (USGS) topographic map (Figure 1), a recent aerial photograph (Figure 2), the Natural Resources Conservation Service (NRCS) web soil survey map (Figure 3), and the National Wetland Inventory (NWI) map each showing the location of the Site. The surveyed limits of the wetlands identified within the project area are shown on the Wetland Location Plan provided in Attachment A. Completed copies of the U.S. Army Corps of Engineers (COE) data forms referenced in the *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Midwest Region (Version 2.0)* are provided in Attachment B. Attachment C contains completed copies of the Ohio Rapid Assessment Method for Wetlands (ORAM 5.0) forms. Attachment D contains color photographs of the wetlands identified during the delineation, as well as typical uplands identified on the Site.

1.0 REGULATORY FRAMEWORK AND STUDY METHODOLOGY

In Ohio, wetlands and waterways that are determined to be Waters of the U.S. are regulated at the federal level by the COE under Section 404 of the Clean Water Act. Wetlands and waterways that are determined to be isolated are regulated at the state level by the Ohio Environmental Protection Agency (OEPA).

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CRA completed the wetland delineation for the Site on July 22 and 23, 2013 using the Routine Onsite Determination Method in the *Corps 1987 Wetland Delineation Manual* and the subsequent *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Midwest Region (Version 2.0)* guidance on field indicators. According to this methodology, wetlands are identified by the presence of three parameters: the dominance of hydrophytic vegetation, the presence of hydric soils, and positive indicators of wetland hydrology. Typically, all three parameters must be present for an area to be considered a jurisdictional wetland(s). However, in areas where one or more of the wetland parameters have been significantly disturbed and were deemed unreliable (e.g., mowed lawn areas, filled areas, etc.), the remaining parameters and best professional judgment were used to delineate the extent of jurisdictional wetlands.

Secondary sources of data for the Site, including the USGS topographic map, aerial photograph, NRCS soil survey, and NWI were reviewed prior to conducting the field investigation. These secondary sources of data are often useful in identifying areas that may contain wetlands based on topography, drainage ways, vegetation, and soil type.

Following the review of the secondary sources of data, wetland scientists from CRA inspected the Site and delineated the wetland and waterway boundaries based on the COE methods. The boundaries between wetlands and uplands were flagged in the field by CRA and surveyed by a land surveyor. The boundaries of parts of the "Quarry Pond", a large, flooded, abandoned quarry pit in the southern portion of the Site, were not flagged due to the presence of a sheer vertical bank of varying heights which made the flagging of these boundaries impractical /unsafe. In these cases, the wetland / waterbody boundary was determined based on the normal water elevation in the Quarry Pond from Site surveyed topographic data and on-Site confirmatory observations.

CRA conducted a wetland functional assessment of the isolated wetlands on the Site using the Ohio Rapid Assessment Method for Wetlands (ORAM 5.0). Data on the chemical, physical and biological characteristics of the wetlands were collected and assessed using the ORAM methods and CRA assigned each isolated wetland delineated a Wetland Category (Category 1, 2, or 3) based on the scoring scale in ORAM 5.0.

2.0 REVIEW OF SECONDARY DATA

Figure 1 shows the location of the Site on a portion of the South Dayton, OH USGS topographic quadrangle. As shown on the USGS topographic map provided as Figure 1, the Site is approximately 80 acres and is located west of the intersection of Dryden Road and East River



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Road; near the Great Miami River. The site is separated from the Great Miami River by 350 feet of flat open land, the Great Miami River Recreation Trail, and a large man-made dyke.

Three isolated topographic depressions occur on the Site that contain ponded water and are referred to as the Small Pond, Large Pond, and Quarry Pond. Figure 2 shows the various parcels associated with the Site and the general location of the Small Pond, Large Pond, and Quarry Pond within the Site boundaries.

An aerial photograph from the NRCS Web Soil Survey (figure 3) shows that the Site is bordered by the Great Miami River to the north and west, Dryden Road to the east, and businesses and residences along East River Road to the south. The Site is currently characterized by areas of dense vegetation in various states of succession on waste and fill material.

As shown on Figure 3, the following soil types are mapped as occurring on the Site:

- ☐ FmA: Fox silt loam; 0 to 2 percent slopes; well drained; not hydric
- ☐ FuB: Fox-Urban land complex; well drained; not hydric
- ☐ Gp: Gravel pits; not hydric
- ☐ Mb: Made land; not hydric

The majority of the Site is mapped as Gravel pits. The very northern and eastern portions of the Site are mapped as Fox-Urban land complex soils which are well drained and not hydric. A small portion of the Site between the Gravel pits and Fox-Urban soils is mapped as Made land. The southernmost portion of the Site is mapped as Fox silt loam soils which are well drained and not hydric. The NRCS map does not indicate any hydric soil within the boundaries of the Site.

The NWI Map (Figure 4) identifies two wetlands within the Site boundaries. A large palustrine, unconsolidated bottom, excavated pond (PUBGx) is indicated in the southern portion of the Site and corresponds to the location of the Quarry Pond. A small, palustrine, scrub-shrub wetland (PSS1C) is indicated near the center of the Site and corresponds to the location of the Large Pond. The Small Pond does not appear on the NWI Map.



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3.0 RESULTS OF WETLAND DELINEATION

3.1 AREA A - QUARRY POND

Flags WLA-1 to A-26 on figure A1 in Attachment A delineate a palustrine emergent wetland associated with a seasonally flooded terrace adjoining the northwestern side of the Quarry Pond and a narrow swale that slopes from the central portion of the Site to the Quarry Pond. Due to the height and steepness of the bank of the Quarry Pond on its western, southern, and eastern banks, it was not possible to flag these waterbody boundaries. Therefore, these boundaries were delineated using the average water elevation in the Quarry Pond and were confirmed by field observations. The vegetation in this area was dominated by black willow (*Salix nigra*), purple loosestrife (*Lythrum salicaria*), moneywort (*Lysimachia nummularia*), straw sedge (*Cyperus esculentus*), and poison ivy (*Toxicodendron radicans*). The soil from 0 to 18 inches was observed to be historical fill and consisted of gray silts and sand and gravels. Indicators of wetland hydrology included saturated soil within the upper 12 inches of the soil profile and periodic inundation observed on historical aerial photographs.

Area A is documented on Data Form 8 in Attachment B, on ORAM 5.0 Form 1 in Attachment C, and in the color photographs provided in Attachment D.

3.2 AREA B - SMALL POND

Flags B-1 to B-11 delineate the wetland boundaries of the Small Pond in the south central portion of the Site. The boundary of this wetland is generally abrupt, being bounded by various fill materials on all sides. The vegetation in this area was dominated by poison ivy along the edges, and eastern cottonwood (*Populus deltoides*), black willow, and green ash (*Fraxinus pennsylvanica*) throughout the Small Pond. The soils are highly variable consisting of varying fill materials. They range from very dark gray to brown (10YR 3/2) loam at 0 to 1 inches, to a lighter brown (10 YR 4/1) sandy loam at 1-18 inches, where soil is present. Indications of wetland hydrology included up to 6" of standing water in some places as well as blackened leaves and water marks on trees.

Area B is documented on Data Form 1 in Attachment B, on ORAM 5.0 Form 2 in Attachment C, and in the color photographs provided in Attachment D.



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3.3 AREA C - LARGE POND

Flags C-1 to C-36 delineate the wetland boundaries associated with the Large Pond generally located in the northern portion of the Site. As with Area B, the wetland boundaries are abrupt as Area C occurs in a depression surrounded by wastes. The vegetation in this area was dominated by poison ivy, green ash, American sycamore (*Platanus occidentalis*), eastern cottonwood, and reed canary grass (*Phalaris arundinacea*). The soil was observed to be a very dark brown (10 YR 2/1) soil mixed with wastes. Wetland hydrology indicators in Area C included standing water, saturated soil, and water stained leaves.

Area C is documented on Data Forms 4 and 5 in Attachment B, on ORAM 5.0 Form 3 in Attachment C, and in the color photographs provided in Attachment D.

3.4 UPLANDS

The uplands on the Site consist of a mosaic of herbaceous and shrub - scrub areas, depending on when they were last cleared. The uplands are dominated by poison ivy, crown vetch (*Coronilla varia*), teasel (*Dipsacus sylvestris*), Eastern cottonwood, black locust (*Robinia pseudoacacia*), and bush honeysuckle (*Diervilla lonicera*). Due to previous landfill operations, soil was highly variable in the uplands with colors including various shades of brown (10 YR 3/2, and 10 YR 4/4), and containing a variety of gravel and sandy materials in various places. No indicators of wetland hydrology were observed in the upland portions of the Site at the time of our field investigation.

The uplands on the Site are documented on Data Forms 2, 3, 6, 7, 9, 10, 11, and 13 in Attachment B and in the color photographs provided in Attachment D.

4.0 RESULTS OF OHIO RAPID ASSESSMENT METHOD 5.0

CRA assessed each wetland area in accordance with OEPA methodologies (ORAM 5.0) to determine its State resource value classification. The category of an isolated wetland influences the permitting standards and mitigation requirements under OEPA regulations.

The final scores for Areas A, B, and C were 27.5, 17 and 27.5 respectively. All 3 wetland scores fell into the range for Category 1 wetlands. Category 1 wetlands are generally considered lower quality and typically have minimal or low function and/or integrity. Area B, the Small Pond, had the lowest ORAM score which is consistent with its degraded nature due to the



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surrounding landfill. Area C, also degraded and surrounded by the landfill, had a slightly higher score than Area B due to its larger size, slightly more diverse habitat, and more diverse plant communities. Area A also scored 27.5 with higher scores for hydrology and size, and lower scores for habitat and plant communities. Area A (the Quarry Pond) is bounded by sheer vertical banks on most sides and generally lacks significant areas of wetland along these sheer banks. Overall, the ORAM results for isolated wetlands support the infield observations that the wetlands have a low functional quality due to their location in the middle of a landfill and the past industrial site activities.

5.0 SUMMARY & RECOMMENDATIONS

CRA identified three isolated wetland areas on the Site (Areas A, B, and C) that scored within the range of a Category 1 wetland as defined by OEPA in the ORAM 5.0. The remainder of the Site consists of uplands on varying fill materials. CRA recommends that a Jurisdictional Determination be obtained from the Army Corps of Engineers to verify the boundaries of jurisdictional Waters of the U.S. on the Site and verify the jurisdictional status of the isolated water bodies (ponds).

If you have any questions or require additional information, please call me at (610) 321-1800 ext. 11.

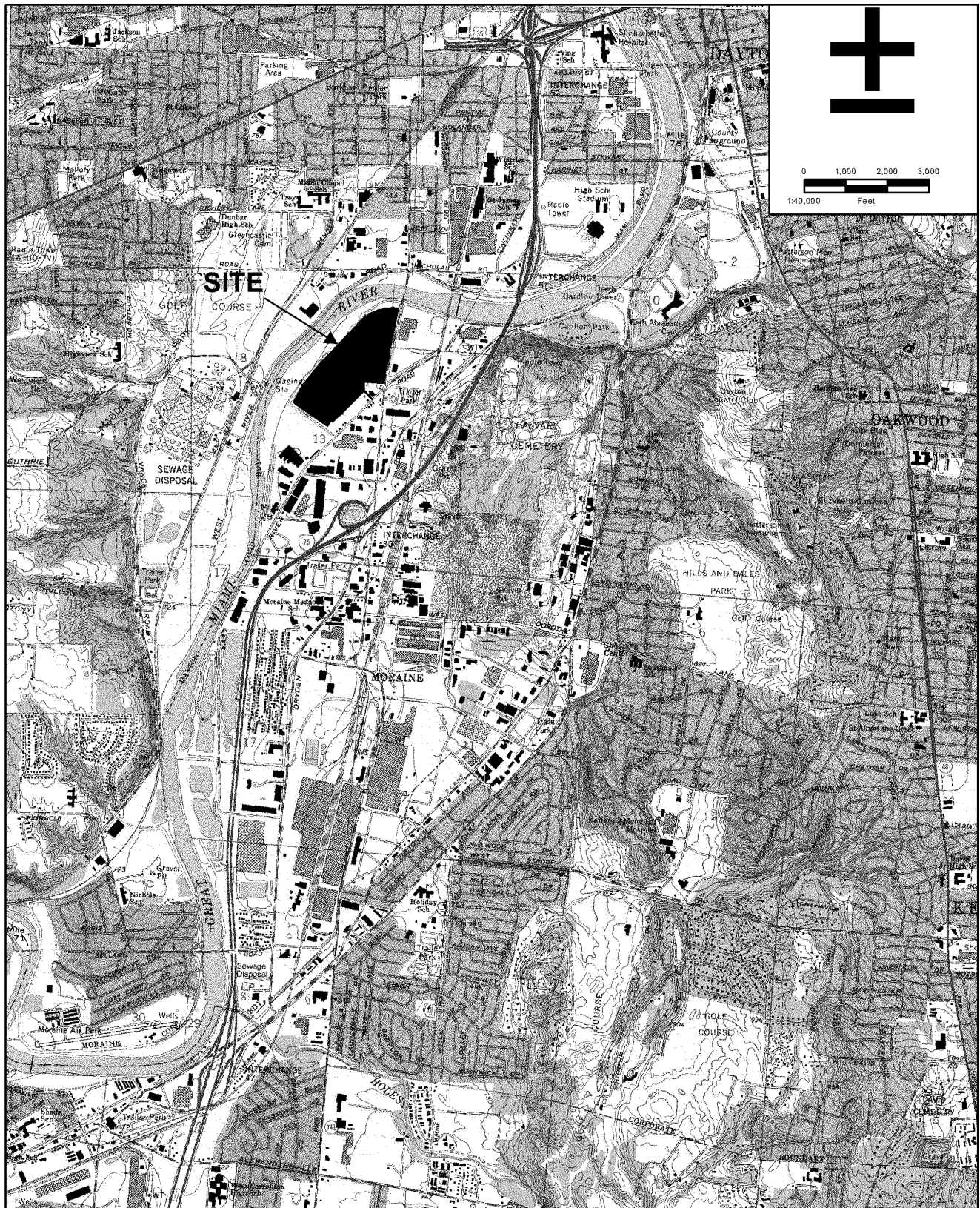
Yours truly,

CONESTOGA ROVERS & ASSOCIATES

Scott E. Bush, P.W.S.
Senior Ecologist

SEB/smk/1
Encl.

FIGURES

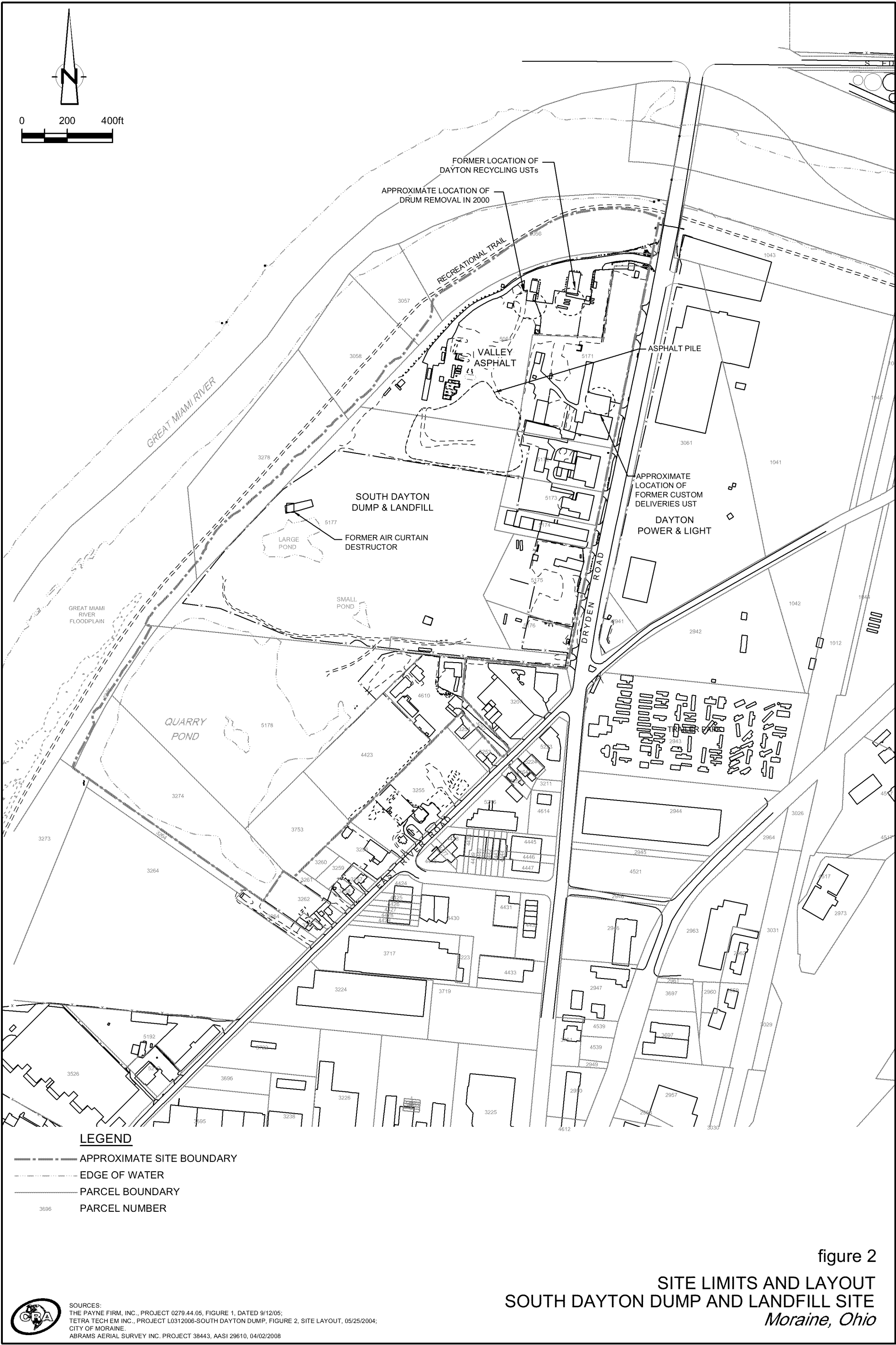


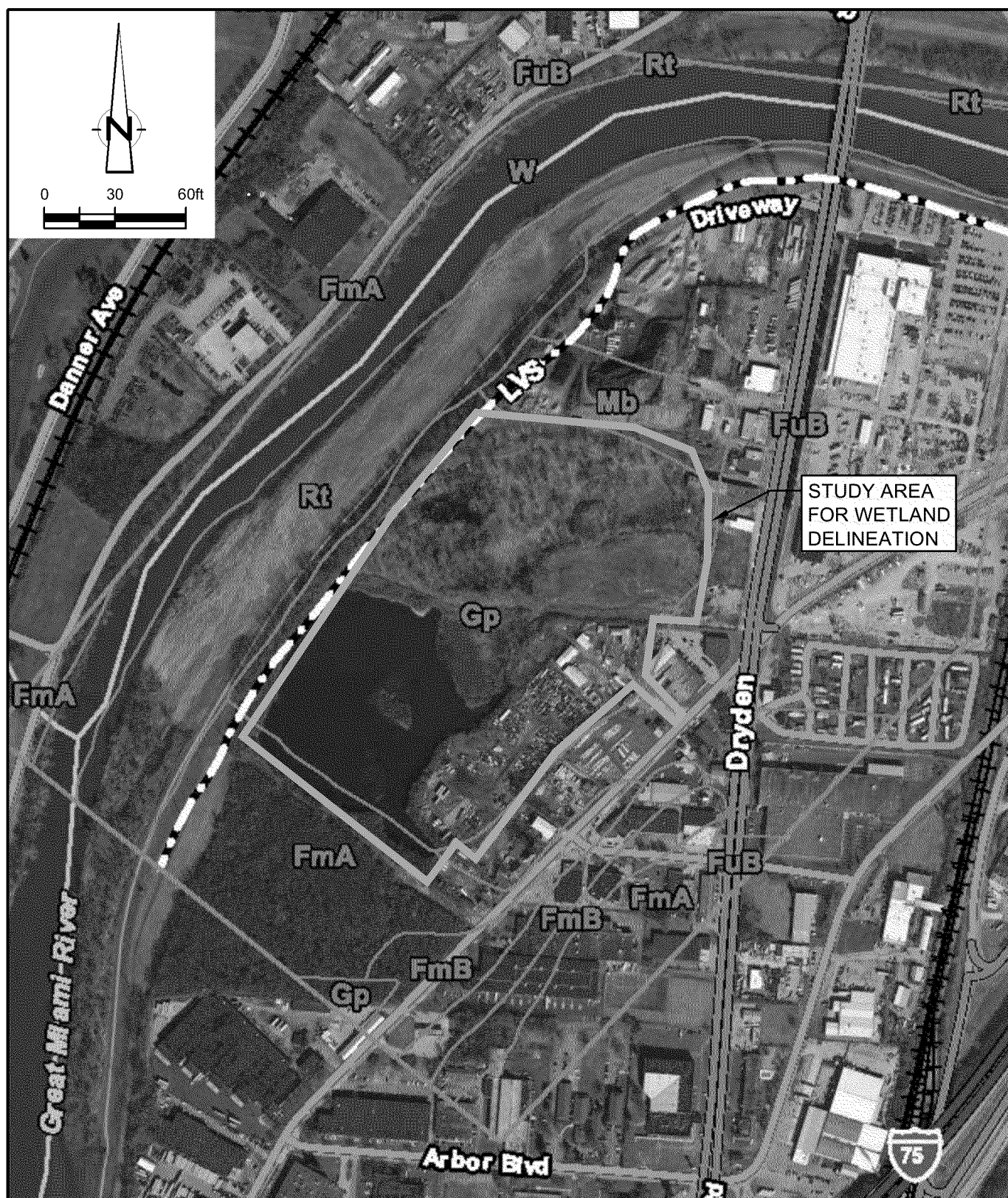
Base Data: Dayton South USGS Quad Image Datum: NAD 83 Projection: Ohio State Plane South

figure 1

SITE LOCATION MAP
SOUTH DAYTON DUMP AND LANDFILL SITE
Moraine, Ohio





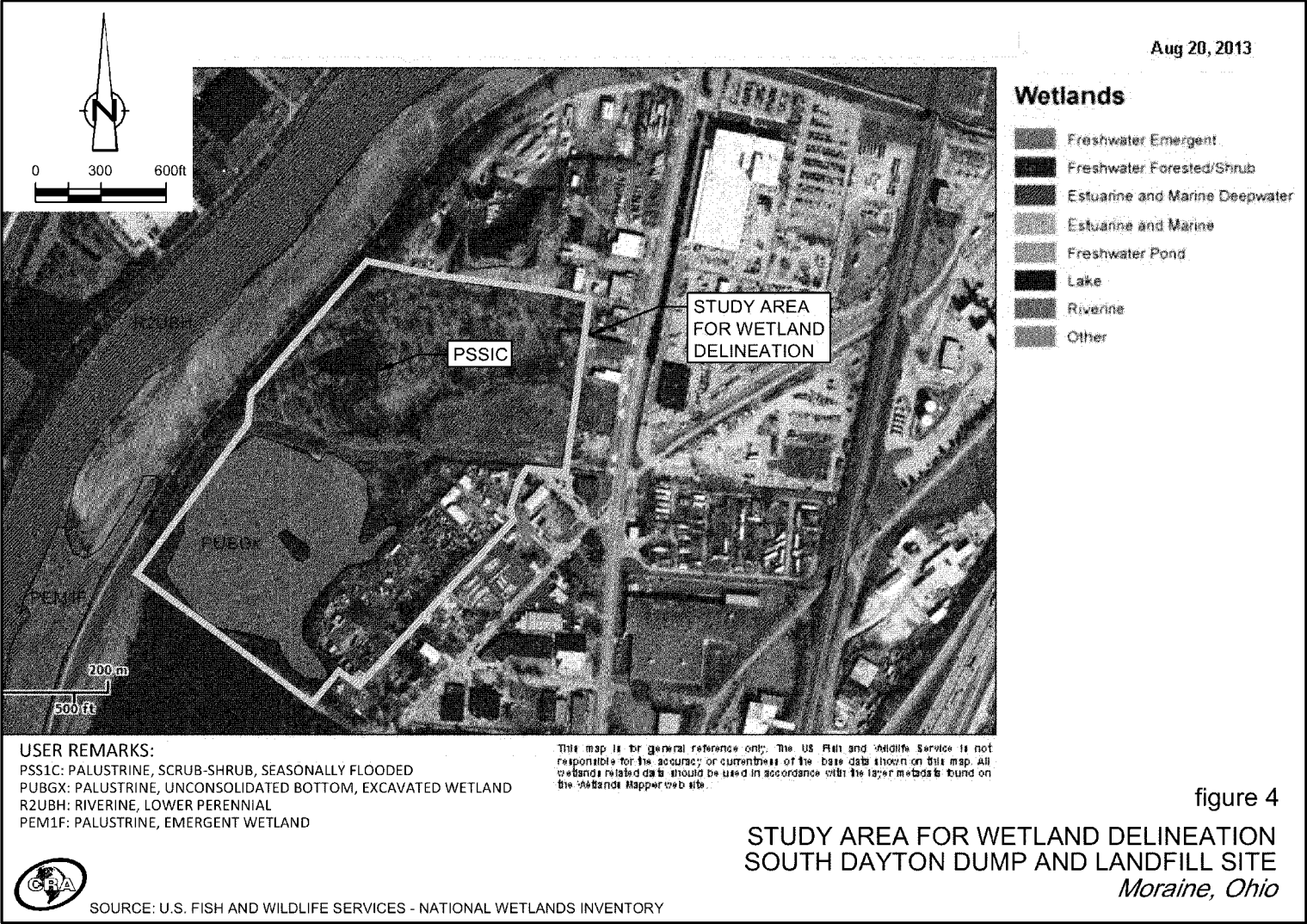


SOURCE: WEB SOIL SURVEY NATIONAL COOPERATIVE SOIL SURVEY

figure 3

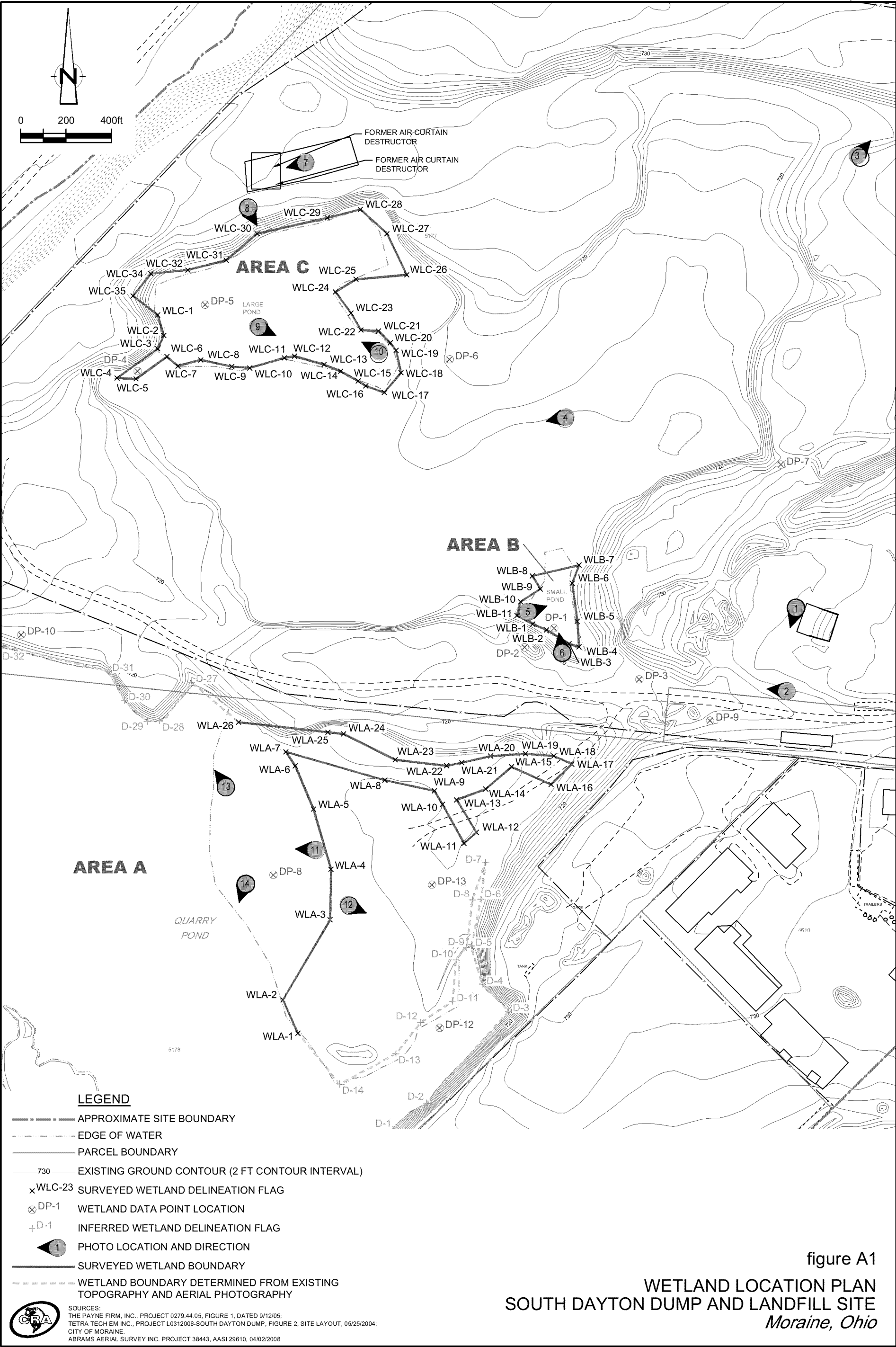
STUDY AREA FOR WETLAND DELINEATION
SOUTH DAYTON DUMP AND LANDFILL SITE
Moraine, Ohio





ATTACHMENT A

SITE PLAN



ATTACHMENT B

DATA FORMS

WETLAND DETERMINATION DATA FORM - Midwest Region

Project/Site South Dayton Landfill City/County: Moraine / Montgomery Sampling Date: 7/23/2013
 Applicant/Owner: CRA State: Ohio Sampling Point: 1
 Investigator(s): Scott Bush, David Blickwedel Section, Township, Range: _____
 Landform (hillslope, terrace, etc.): Terrace Local relief (concave, convex, none): Concave
 Slope (%): 0 Lat: 39.7257 Long: 84.22083 Datum: WGS84
 Soil Map Unit Name Gp _____ NWI Classification: PFO1

Are climatic/hydrologic conditions of the site typical for this time of the year? Y (If no, explain in remarks)

Are vegetation _____, soil _____, or hydrology _____ significantly disturbed?

Are "normal circumstances"

Are vegetation _____, soil _____, or hydrology _____ naturally problematic?

present? Yes

SUMMARY OF FINDINGS

(If needed, explain any answers in remarks.)

Hydrophytic vegetation present? <u>Y</u>	Is the sampled area within a wetland <u>Y</u> If yes, optional wetland site ID: <u>Small Pond</u>
Hydric soil present? <u>Y</u>	
Wetland hydrology present? <u>Y</u>	

Remarks: (Explain alternative procedures here or in a separate report.)

Location is within a superfund landfill Site, soils are highly variable

VEGETATION -- Use scientific names of plants.

Tree Stratum	(Plot size: <u>30</u>)	Absolute % Cover	Dominant Species	Indicator Status
1	<u>Populus deltoides</u>	<u>60</u>	<u>Y</u>	<u>FAC</u>
2	<u>Salix nigra</u>	<u>15</u>	<u>N</u>	<u>OBL</u>
3	<u>Platanus occidentalis</u>	<u>10</u>	<u>N</u>	<u>FACW</u>
4	<u>Fraxinus pennsylvanica</u>	<u>10</u>	<u>N</u>	<u>FACW</u>
5	<u>Acer saccharinum</u>	<u>5</u>	<u>N</u>	<u>FACW</u>
		<u>100</u>	<u>= Total Cover</u>	
Sapling/Shrub stratum	(Plot size: <u>15</u>)			
1	<u>Salix nigra</u>	<u>20</u>	<u>Y</u>	<u>OBL</u>
2				
3				
4				
5				
		<u>20</u>	<u>= Total Cover</u>	
Herb stratum	(Plot size: <u>5</u>)			
1	<u>Toxicodendron radicans subsp. negundo</u>	<u>25</u>	<u>Y</u>	<u>FAC</u>
2	<u>Dipsacus laciniatus</u>	<u>10</u>	<u>Y</u>	<u>NI</u>
3	<u>Bidens connatus</u>	<u>2</u>	<u>N</u>	<u>OBL</u>
4	<u>Aster novae-angliae</u>	<u>2</u>	<u>N</u>	<u>FACW</u>
5				
6				
7				
8				
9				
10				
		<u>39</u>	<u>= Total Cover</u>	
Woody vine stratum	(Plot size: _____)			
1				
2				
		<u>0</u>	<u>= Total Cover</u>	

Dominance Test Worksheet	
Number of Dominant Species that are OBL, FACW, or FAC:	<u>3</u> (A)
Total Number of Dominant Species Across all Strata:	<u>4</u> (B)
Percent of Dominant Species that are OBL, FACW, or FAC:	<u>75.00%</u> (A/B)

Prevalence Index Worksheet	
Total % Cover of:	
OBL species	<u>37</u> x 1 = <u>37</u>
FACW species	<u>27</u> x 2 = <u>54</u>
FAC species	<u>85</u> x 3 = <u>255</u>
FACU species	<u>0</u> x 4 = <u>0</u>
UPL species	<u>0</u> x 5 = <u>0</u>
Column totals	<u>149</u> (A) <u>346</u> (B)
Prevalence Index = B/A = <u>2.32</u>	

Hydrophytic Vegetation Indicators:	
Rapid test for hydrophytic vegetation	
<u>X</u>	Dominance test is >50%
<u>X</u>	Prevalence index is ≤3.0*
Morphological adaptations* (provide supporting data in Remarks or on a separate sheet)	
Problematic hydrophytic vegetation* (explain)	
*Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic	

Hydrophytic vegetation present?	
<u>Y</u>	

Remarks: (Include photo numbers here or on a separate sheet)

SOILSampling Point: 1**Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)**

Depth (Inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type*	Loc**		
0-1"	10yr 2/1						Loam	
2-18"	10yr 4/1						Sandy Loam	

*Type: C = Concentration, D = Depletion, RM = Reduced Matrix, MS = Masked Sand Grains. **Location: PL = Pore Lining, M = Matrix

Hydric Soil Indicators:

- | | |
|--|--|
| <input type="checkbox"/> Histisol (A1) | <input type="checkbox"/> Sandy Gleyed Matrix (S4) |
| <input type="checkbox"/> Histic Epipedon (A2) | <input type="checkbox"/> Sandy Redox (S5) |
| <input type="checkbox"/> Black Histic (A3) | <input type="checkbox"/> Stripped Matrix (S6) |
| <input type="checkbox"/> Hydrogen Sulfide (A4) | <input type="checkbox"/> Loamy Mucky Mineral (F1) |
| <input type="checkbox"/> Stratified Layers (A5) | <input type="checkbox"/> Loamy Gleyed Matrix (F2) |
| <input type="checkbox"/> 2 cm Muck (A10) | <input checked="" type="checkbox"/> Depleted Matrix (F3) |
| <input type="checkbox"/> Depleted Below Dark Surface (A11) | <input type="checkbox"/> Redox Dark Surface (F6) |
| <input type="checkbox"/> Thick Dark Surface (A12) | <input type="checkbox"/> Depleted Dark Surface (F7) |
| <input type="checkbox"/> Sandy Mucky Mineral (S1) | <input type="checkbox"/> Redox Depressions (F8) |
| <input type="checkbox"/> 5 cm Mucky Peat or Peat (S3) | |

Indicators for Problematic Hydric Soils:

- | |
|---|
| <input type="checkbox"/> Coast Prairie Redox (A16) (LRR K, L, R) |
| <input type="checkbox"/> Dark Surface (S7) (LRR K, L) |
| <input type="checkbox"/> 5 cm Mucky Peat or Peat (S3) (LRR K, L, R) |
| <input type="checkbox"/> Iron-Manganese Masses (F12) (LRR K, L, R) |
| <input type="checkbox"/> Very Shallow Dark Surface (TF12) |
| <input type="checkbox"/> Other (explain in remarks) |

*Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic

Restrictive Layer (if observed):Type: _____
Depth (inches): _____Hydric soil present? Y

Remarks:

HYDROLOGY**Wetland Hydrology Indicators:**

Primary Indicators (minimum of one is required; check all that apply)

- | |
|--|
| <input checked="" type="checkbox"/> Surface Water (A1) |
| <input type="checkbox"/> High Water Table (A2) |
| <input type="checkbox"/> Saturation (A3) |
| <input checked="" type="checkbox"/> Water Marks (B1) |
| <input type="checkbox"/> Sediment Deposits (B2) |
| <input type="checkbox"/> Drift Deposits (B3) |
| <input type="checkbox"/> Algal Mat or Crust (B4) |
| <input type="checkbox"/> Iron Deposits (B5) |
| <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) |
| <input type="checkbox"/> Sparsely Vegetated Concave Surface (B8) |
| <input type="checkbox"/> Water-Stained Leaves (B9) |

- | |
|---|
| <input type="checkbox"/> Aquatic Fauna (B13) |
| <input type="checkbox"/> True Aquatic Plants (B14) |
| <input type="checkbox"/> Hydrogen Sulfide Odor (C1) |
| <input type="checkbox"/> Oxidized Rhizospheres on Living Roots (C3) |
| <input type="checkbox"/> Presence of Reduced Iron (C4) |
| <input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6) |
| <input type="checkbox"/> Thin Muck Surface (C7) |
| <input type="checkbox"/> Gauge or Well Data (D9) |
| <input type="checkbox"/> Other (Explain in Remarks) |

Secondary Indicators (minimum of two required)

- | |
|--|
| <input type="checkbox"/> Surface Soil Cracks (B6) |
| <input type="checkbox"/> Drainage Patterns (B10) |
| <input type="checkbox"/> Dry-Season Water Table (C2) |
| <input type="checkbox"/> Crayfish Burrows (C8) |
| <input type="checkbox"/> Saturation Visible on Aerial Imagery (C9) |
| <input type="checkbox"/> Stunted or Stressed Plants (D1) |
| <input type="checkbox"/> Geomorphic Position (D2) |
| <input type="checkbox"/> FAC-Neutral Test (D5) |

Field Observations:

Surface water present?	Yes <u>X</u>	No _____	Depth (inches): <u>0-6"</u>
Water table present?	Yes _____	No _____	Depth (inches): _____
Saturation present?	Yes _____	No _____	Depth (inches): _____

(includes capillary fringe)

Wetland hydrology present? Y

Describe recorded data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

PF01A

WETLAND DETERMINATION DATA FORM - Midwest Region

Project/Site South Dayton Landfill City/County: Moraine / Montgomery Sampling Date: 7/23/2013
 Applicant/Owner: CRA State: Ohio Sampling Point: 2
 Investigator(s): Scott Bush, David Blickwedel Section, Township, Range: _____
 Landform (hillslope, terrace, etc.): Terrace Local relief (concave, convex, none): convex
 Slope (%): _____ Lat: 39.725540° Long: -84.220782° Datum: WGS84
 Soil Map Unit Name Gp _____ NWI Classification: NA

Are climatic/hydrologic conditions of the site typical for this time of the year? Y (If no, explain in remarks)

Are vegetation _____, soil _____, or hydrology _____ significantly disturbed? Are "normal circumstances" _____

Are vegetation _____, soil _____, or hydrology _____ naturally problematic? present? Yes

SUMMARY OF FINDINGS

(If needed, explain any answers in remarks.)

Hydrophytic vegetation present? <u>N</u>	Is the sampled area within a wetland <u>N</u>
Hydric soil present? <u>N</u>	
Wetland hydrology present? <u>N</u>	
Remarks: (Explain alternative procedures here or in a separate report.)	
Location is within a superfund landfill Site, soils are highly variable	

VEGETATION -- Use scientific names of plants.

Tree Stratum	(Plot size: <u>30</u>)	Absolute % Cover	Dominant Species	Indicator Status	Dominance Test Worksheet Number of Dominant Species that are OBL, FACW, or FAC: <u>2</u> (A) Total Number of Dominant Species Across all Strata: <u>4</u> (B) Percent of Dominant Species that are OBL, FACW, or FAC: <u>50.00%</u> (A/B)
1	<u><i>Robinia pseudoacacia</i></u>	<u>10</u>	<u>Y</u>	<u>FACU</u>	
2	_____	_____	_____	_____	
3	_____	_____	_____	_____	
4	_____	_____	_____	_____	
5	_____	<u>10</u>	<u>= Total Cover</u>		Prevalence Index Worksheet Total % Cover of: OBL species <u>0</u> x 1 = <u>0</u> FACW species <u>0</u> x 2 = <u>0</u> FAC species <u>45</u> x 3 = <u>135</u> FACU species <u>10</u> x 4 = <u>40</u> UPL species <u>0</u> x 5 = <u>0</u> Column totals <u>55</u> (A) <u>175</u> (B) Prevalence Index = B/A = <u>3.18</u>
Sapling/Shrub stratum (Plot size: <u>15</u>)					
1	<u><i>Diervilla lonicera</i></u>	<u>90</u>	<u>Y</u>	<u>NI</u>	
2	_____	_____	_____	_____	
3	_____	_____	_____	_____	
4	_____	_____	_____	_____	
5	_____	<u>90</u>	<u>= Total Cover</u>		
Herb stratum (Plot size: <u>5</u>)					
1	<u><i>Parthenocissus quinquefolia</i></u>	<u>30</u>	<u>Y</u>	<u>FAC</u>	Hydrophytic Vegetation Indicators: _____ Rapid test for hydrophytic vegetation _____ Dominance test is >50% _____ Prevalence index is ≤3.0* _____ Morphological adaptations* (provide supporting data in Remarks or on a separate sheet) _____ Problematic hydrophytic vegetation* (explain) _____ *Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic
2	<u><i>Toxicodendron radicans</i> subsp. <i>negundo</i></u>	<u>15</u>	<u>Y</u>	<u>FAC</u>	
3	_____	_____	_____	_____	
4	_____	_____	_____	_____	
5	_____	_____	_____	_____	
6	_____	_____	_____	_____	
7	_____	_____	_____	_____	
8	_____	_____	_____	_____	
9	_____	_____	_____	_____	
10	_____	<u>45</u>	<u>= Total Cover</u>		
Woody vine stratum (Plot size: <u>30</u>)					
1	_____	_____	_____	_____	Hydrophytic vegetation present? <u>N</u>
2	_____	<u>0</u>	<u>= Total Cover</u>		

Remarks: (Include photo numbers here or on a separate sheet)

SOILSampling Point: 2**Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)**

Depth (Inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type*	Loc**		
0-18"	10YR4/4						Various Fill and clay loam	

*Type: C = Concentration, D = Depletion, RM = Reduced Matrix, MS = Masked Sand Grains. **Location: PL = Pore Lining, M = Matrix

Hydric Soil Indicators:

- | | |
|--|---|
| <input type="checkbox"/> Histisol (A1) | <input type="checkbox"/> Sandy Gleyed Matrix (S4) |
| <input type="checkbox"/> Histic Epipedon (A2) | <input type="checkbox"/> Sandy Redox (S5) |
| <input type="checkbox"/> Black Histic (A3) | <input type="checkbox"/> Stripped Matrix (S6) |
| <input type="checkbox"/> Hydrogen Sulfide (A4) | <input type="checkbox"/> Loamy Mucky Mineral (F1) |
| <input type="checkbox"/> Stratified Layers (A5) | <input type="checkbox"/> Loamy Gleyed Matrix (F2) |
| <input type="checkbox"/> 2 cm Muck (A10) | <input type="checkbox"/> Depleted Matrix (F3) |
| <input type="checkbox"/> Depleted Below Dark Surface (A11) | <input type="checkbox"/> Redox Dark Surface (F6) |
| <input type="checkbox"/> Thick Dark Surface (A12) | <input type="checkbox"/> Depleted Dark Surface (F7) |
| <input type="checkbox"/> Sandy Mucky Mineral (S1) | <input type="checkbox"/> Redox Depressions (F8) |
| <input type="checkbox"/> 5 cm Mucky Peat or Peat (S3) | |

Indicators for Problematic Hydric Soils:

- | |
|---|
| <input type="checkbox"/> Coast Prairie Redox (A16) (LRR K, L, R) |
| <input type="checkbox"/> Dark Surface (S7) (LRR K, L) |
| <input type="checkbox"/> 5 cm Mucky Peat or Peat (S3) (LRR K, L, R) |
| <input type="checkbox"/> Iron-Manganese Masses (F12) (LRR K, L, R) |
| <input type="checkbox"/> Very Shallow Dark Surface (TF12) |
| <input type="checkbox"/> Other (explain in remarks) |

*Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic

Restrictive Layer (if observed):Type: _____
Depth (inches): _____Hydric soil present? N

Remarks:

HYDROLOGY**Wetland Hydrology Indicators:**

Primary Indicators (minimum of one is required; check all that apply)

- | | |
|--|---|
| <input type="checkbox"/> Surface Water (A1) | <input type="checkbox"/> Aquatic Fauna (B13) |
| <input type="checkbox"/> High Water Table (A2) | <input type="checkbox"/> True Aquatic Plants (B14) |
| <input type="checkbox"/> Saturation (A3) | <input type="checkbox"/> Hydrogen Sulfide Odor (C1) |
| <input type="checkbox"/> Water Marks (B1) | <input type="checkbox"/> Oxidized Rhizospheres on Living Roots (C3) |
| <input type="checkbox"/> Sediment Deposits (B2) | <input type="checkbox"/> Presence of Reduced Iron (C4) |
| <input type="checkbox"/> Drift Deposits (B3) | <input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6) |
| <input type="checkbox"/> Algal Mat or Crust (B4) | <input type="checkbox"/> Thin Muck Surface (C7) |
| <input type="checkbox"/> Iron Deposits (B5) | <input type="checkbox"/> Gauge or Well Data (D9) |
| <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) | <input type="checkbox"/> Other (Explain in Remarks) |
| <input type="checkbox"/> Sparsely Vegetated Concave Surface (B8) | |
| <input type="checkbox"/> Water-Stained Leaves (B9) | |

Secondary Indicators (minimum of two required)

- | |
|--|
| <input type="checkbox"/> Surface Soil Cracks (B6) |
| <input type="checkbox"/> Drainage Patterns (B10) |
| <input type="checkbox"/> Dry-Season Water Table (C2) |
| <input type="checkbox"/> Crayfish Burrows (C8) |
| <input type="checkbox"/> Saturation Visible on Aerial Imagery (C9) |
| <input type="checkbox"/> Stunted or Stressed Plants (D1) |
| <input type="checkbox"/> Geomorphic Position (D2) |
| <input type="checkbox"/> FAC-Neutral Test (D5) |

Field Observations:

Surface water present?	Yes <input type="checkbox"/>	No <input type="checkbox"/>	Depth (inches): <input type="text"/>
Water table present?	Yes <input type="checkbox"/>	No <input type="checkbox"/>	Depth (inches): <input type="text"/>
Saturation present?	Yes <input type="checkbox"/>	No <input type="checkbox"/>	Depth (inches): <input type="text"/>

(includes capillary fringe)

Wetland hydrology present? N

Describe recorded data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

On landfill

WETLAND DETERMINATION DATA FORM - Midwest Region

Project/Site South Dayton Landfill City/County: Maraine / Montgomery Sampling Date: 7/23/2013
 Applicant/Owner: CRA State: Ohio Sampling Point: 3
 Investigator(s): Scott Bush, David Blickwedel Section, Township, Range: _____
 Landform (hillslope, terrace, etc.): Terrace Local relief (concave, convex, none): flat
 Slope (%): 0 Lat: 39.72553 Long: 84.22164 Datum: WGS 84
 Soil Map Unit Name Gp _____ NWI Classification: NA

Are climatic/hydrologic conditions of the site typical for this time of the year? Y (If no, explain in remarks)

Are vegetation _____, soil _____, or hydrology _____ significantly disturbed?

Are "normal circumstances" present? Yes

Are vegetation _____, soil _____, or hydrology _____ naturally problematic?

present? Yes

SUMMARY OF FINDINGS

(If needed, explain any answers in remarks.)

Hydrophytic vegetation present? <u>N</u>	Is the sampled area within a wetland <u>N</u> If yes, optional wetland site ID: _____
Hydric soil present? <u>N</u>	
Wetland hydrology present? <u>N</u>	

Remarks: (Explain alternative procedures here or in a separate report.)

Location is within a superfund landfill Site, soils are highly variable

VEGETATION -- Use scientific names of plants.

Tree Stratum	(Plot size: _____)	Absolute % Cover	Dominant Species	Indicator Status	Dominance Test Worksheet Number of Dominant Species that are OBL, FACW, or FAC: <u>0</u> (A) Total Number of Dominant Species Across all Strata: <u>2</u> (B) Percent of Dominant Species that are OBL, FACW, or FAC: <u>0.00%</u> (A/B)
1					
2					
3					
4					
5					
		<u>0</u>	= Total Cover		Prevalence Index Worksheet Total % Cover of: OBL species <u>0</u> x 1 = <u>0</u> FACW species <u>0</u> x 2 = <u>0</u> FAC species <u>2</u> x 3 = <u>6</u> FACU species <u>30</u> x 4 = <u>120</u> UPL species <u>2</u> x 5 = <u>10</u> Column totals <u>34</u> (A) <u>136</u> (B) Prevalence Index = B/A = <u>4.00</u>
Sapling/Shrub stratum	(Plot size: _____)				
1					
2					
3					
4					
5					
		<u>0</u>	= Total Cover		
Herb stratum	(Plot size: <u>5</u>)				Hydrophytic Vegetation Indicators: _____ Rapid test for hydrophytic vegetation _____ Dominance test is >50% _____ Prevalence index is ≤3.0* _____ Morphological adaptations* (provide supporting data in Remarks or on a separate sheet) _____ Problematic hydrophytic vegetation* (explain) _____ *Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic
1	<u>Coronilla varia</u>	<u>80</u>	<u>Y</u>	<u>NI</u>	
2	<u>Eupatorium rugosum</u>	<u>30</u>	<u>Y</u>	<u>FACU</u>	
3	<u>Cichorium intybus</u>	<u>10</u>	<u>N</u>	<u>NI</u>	
4	<u>Daucus carota</u>	<u>2</u>	<u>N</u>	<u>UPL</u>	
5	<u>Morus rubra</u>	<u>2</u>	<u>N</u>	<u>FAC</u>	
6					
7					
8					
9					
10					
		<u>124</u>	= Total Cover		
Woody vine stratum	(Plot size: _____)				Hydrophytic vegetation present? <u>N</u>
1					
2					
		<u>0</u>	= Total Cover		

Remarks: (Include photo numbers here or on a separate sheet)

SOILSampling Point: 3**Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)**

Depth (Inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type*	Loc**		
0-18"	10YR 4/3						Sandy loam w/ gravel	gravel 20%

*Type: C = Concentration, D = Depletion, RM = Reduced Matrix, MS = Masked Sand Grains. **Location: PL = Pore Lining, M = Matrix

Hydric Soil Indicators:

- | | |
|--|---|
| <input type="checkbox"/> Histisol (A1) | <input type="checkbox"/> Sandy Gleyed Matrix (S4) |
| <input type="checkbox"/> Histic Epipedon (A2) | <input type="checkbox"/> Sandy Redox (S5) |
| <input type="checkbox"/> Black Histic (A3) | <input type="checkbox"/> Stripped Matrix (S6) |
| <input type="checkbox"/> Hydrogen Sulfide (A4) | <input type="checkbox"/> Loamy Mucky Mineral (F1) |
| <input type="checkbox"/> Stratified Layers (A5) | <input type="checkbox"/> Loamy Gleyed Matrix (F2) |
| <input type="checkbox"/> 2 cm Muck (A10) | <input type="checkbox"/> Depleted Matrix (F3) |
| <input type="checkbox"/> Depleted Below Dark Surface (A11) | <input type="checkbox"/> Redox Dark Surface (F6) |
| <input type="checkbox"/> Thick Dark Surface (A12) | <input type="checkbox"/> Depleted Dark Surface (F7) |
| <input type="checkbox"/> Sandy Mucky Mineral (S1) | <input type="checkbox"/> Redox Depressions (F8) |
| <input type="checkbox"/> 5 cm Mucky Peat or Peat (S3) | |

Indicators for Problematic Hydric Soils:

- | |
|---|
| <input type="checkbox"/> Coast Prairie Redox (A16) (LRR K, L, R) |
| <input type="checkbox"/> Dark Surface (S7) (LRR K, L) |
| <input type="checkbox"/> 5 cm Mucky Peat or Peat (S3) (LRR K, L, R) |
| <input type="checkbox"/> Iron-Manganese Masses (F12) (LRR K, L, R) |
| <input type="checkbox"/> Very Shallow Dark Surface (TF12) |
| <input type="checkbox"/> Other (explain in remarks) |

*Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic

Restrictive Layer (if observed):
 Type: _____
 Depth (inches): _____
Hydric soil present? N

Remarks:

HYDROLOGY**Wetland Hydrology Indicators:**Primary Indicators (minimum of one is required; check all that apply)

- | |
|--|
| <input type="checkbox"/> Surface Water (A1) |
| <input type="checkbox"/> High Water Table (A2) |
| <input type="checkbox"/> Saturation (A3) |
| <input type="checkbox"/> Water Marks (B1) |
| <input type="checkbox"/> Sediment Deposits (B2) |
| <input type="checkbox"/> Drift Deposits (B3) |
| <input type="checkbox"/> Algal Mat or Crust (B4) |
| <input type="checkbox"/> Iron Deposits (B5) |
| <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) |
| <input type="checkbox"/> Sparsely Vegetated Concave Surface (B8) |
| <input type="checkbox"/> Water-Stained Leaves (B9) |

- | |
|---|
| <input type="checkbox"/> Aquatic Fauna (B13) |
| <input type="checkbox"/> True Aquatic Plants (B14) |
| <input type="checkbox"/> Hydrogen Sulfide Odor (C1) |
| <input type="checkbox"/> Oxidized Rhizospheres on Living Roots (C3) |
| <input type="checkbox"/> Presence of Reduced Iron (C4) |
| <input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6) |
| <input type="checkbox"/> Thin Muck Surface (C7) |
| <input type="checkbox"/> Gauge or Well Data (D9) |
| <input type="checkbox"/> Other (Explain in Remarks) |

Secondary Indicators (minimum of two required)

- | |
|--|
| <input type="checkbox"/> Surface Soil Cracks (B6) |
| <input type="checkbox"/> Drainage Patterns (B10) |
| <input type="checkbox"/> Dry-Season Water Table (C2) |
| <input type="checkbox"/> Crayfish Burrows (C8) |
| <input type="checkbox"/> Saturation Visible on Aerial Imagery (C9) |
| <input type="checkbox"/> Stunted or Stressed Plants (D1) |
| <input type="checkbox"/> Geomorphic Position (D2) |
| <input type="checkbox"/> FAC-Neutral Test (D5) |

Field Observations:

Surface water present?	Yes <input type="checkbox"/> No <input type="checkbox"/>	Depth (inches): <input type="text"/>
Water table present?	Yes <input type="checkbox"/> No <input type="checkbox"/>	Depth (inches): <input type="text"/>
Saturation present?	Yes <input type="checkbox"/> No <input type="checkbox"/>	Depth (inches): <input type="text"/>

 (includes capillary fringe)

Wetland hydrology present? N

Describe recorded data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM - Midwest Region

Project/Site South Dayton Landfill City/County: Moraine / Montgomery Sampling Date: 7/23/2013
 Applicant/Owner: CRA State: Ohio Sampling Point: 4
 Investigator(s): Scott Bush, David Blickwedel Section, Township, Range: _____
 Landform (hillslope, terrace, etc.): depression Local relief (concave, convex, none): concave
 Slope (%): 0 Lat: 39.72641 Long: 84.22238 Datum: WGS 84
 Soil Map Unit Name Gp _____ NWI Classification: N/A

Are climatic/hydrologic conditions of the site typical for this time of the year? Y (If no, explain in remarks)

Are vegetation _____, soil _____, or hydrology _____ significantly disturbed?

Are "normal circumstances" present? Yes

Are vegetation _____, soil _____, or hydrology _____ naturally problematic?

present? Yes

SUMMARY OF FINDINGS

(If needed, explain any answers in remarks.)

Hydrophytic vegetation present? <u>Y</u>	Is the sampled area within a wetland <u>Y</u> If yes, optional wetland site ID: _____
Hydric soil present? <u>Y</u>	
Wetland hydrology present? <u>Y</u>	

Remarks: (Explain alternative procedures here or in a separate report.)

Location is within a superfund landfill Site, soils are highly variable

VEGETATION -- Use scientific names of plants.

Tree Stratum	(Plot size: <u>30</u>)	Absolute % Cover	Dominant Species	Indicator Status	Dominance Test Worksheet Number of Dominant Species that are OBL, FACW, or FAC: <u>3</u> (A) Total Number of Dominant Species Across all Strata: <u>3</u> (B) Percent of Dominant Species that are OBL, FACW, or FAC: <u>100.00%</u> (A/B)
1					
2					
3					
4					
5					
		<u>0</u>	= Total Cover		Prevalence Index Worksheet Total % Cover of: OBL species <u>10</u> x 1 = <u>10</u> FACW species <u>80</u> x 2 = <u>160</u> FAC species <u>30</u> x 3 = <u>90</u> FACU species <u>0</u> x 4 = <u>0</u> UPL species <u>0</u> x 5 = <u>0</u> Column totals <u>120</u> (A) <u>260</u> (B) Prevalence Index = B/A = <u>2.17</u>
Sapling/Shrub stratum	(Plot size: <u>15</u>)				
1					
2					
3					
4					
5					
		<u>0</u>	= Total Cover		
Herb stratum	(Plot size: <u>5</u>)				Hydrophytic Vegetation Indicators: _____ Rapid test for hydrophytic vegetation <input checked="" type="checkbox"/> Dominance test is >50% <input checked="" type="checkbox"/> Prevalence index is ≤3.0* _____ Morphological adaptations* (provide supporting data in Remarks or on a separate sheet) _____ Problematic hydrophytic vegetation* (explain) _____ *Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic
1					
2	<i>Carex scoparia</i>	50	Y	FACW	
3	<i>Toxicodendron radicans subsp. negundo</i>	30	Y	FAC	
4	<i>Acer negundo</i>	25	Y	FACW	
5	<i>Phyla lanceolata</i>	10	N	OBL	
6	<i>Fraxinus pennsylvanica</i>	5	N	FACW	
7					
8					
9					
10					
		<u>120</u>	= Total Cover		
Woody vine stratum	(Plot size: <u>30</u>)				Hydrophytic vegetation present? <u>Y</u>
1					
2					
		<u>0</u>	= Total Cover		

Remarks: (Include photo numbers here or on a separate sheet)

SOILSampling Point: 4**Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)**

Depth (Inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type*	Loc**		
0-18"	10yr 2/1	100					silt loam and fill sands	

*Type: C = Concentration, D = Depletion, RM = Reduced Matrix, MS = Masked Sand Grains. **Location: PL = Pore Lining, M = Matrix

Hydric Soil Indicators:

- | | |
|--|--|
| <input type="checkbox"/> Histisol (A1) | <input type="checkbox"/> Sandy Gleyed Matrix (S4) |
| <input type="checkbox"/> Histic Epipedon (A2) | <input type="checkbox"/> Sandy Redox (S5) |
| <input type="checkbox"/> Black Histic (A3) | <input type="checkbox"/> Stripped Matrix (S6) |
| <input type="checkbox"/> Hydrogen Sulfide (A4) | <input type="checkbox"/> Loamy Mucky Mineral (F1) |
| <input type="checkbox"/> Stratified Layers (A5) | <input type="checkbox"/> Loamy Gleyed Matrix (F2) |
| <input type="checkbox"/> 2 cm Muck (A10) | <input checked="" type="checkbox"/> Depleted Matrix (F3) |
| <input type="checkbox"/> Depleted Below Dark Surface (A11) | <input type="checkbox"/> Redox Dark Surface (F6) |
| <input type="checkbox"/> Thick Dark Surface (A12) | <input type="checkbox"/> Depleted Dark Surface (F7) |
| <input type="checkbox"/> Sandy Mucky Mineral (S1) | <input type="checkbox"/> Redox Depressions (F8) |
| <input type="checkbox"/> 5 cm Mucky Peat or Peat (S3) | |

Indicators for Problematic Hydric Soils:

- | |
|---|
| <input type="checkbox"/> Coast Prairie Redox (A16) (LRR K, L, R) |
| <input type="checkbox"/> Dark Surface (S7) (LRR K, L) |
| <input type="checkbox"/> 5 cm Mucky Peat or Peat (S3) (LRR K, L, R) |
| <input type="checkbox"/> Iron-Manganese Masses (F12) (LRR K, L, R) |
| <input type="checkbox"/> Very Shallow Dark Surface (TF12) |
| <input checked="" type="checkbox"/> Other (explain in remarks) |

*Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic

Restrictive Layer (if observed):Type: _____
Depth (inches): _____Hydric soil present? Y

Remarks:

Assumed hydric. Dark color related to surficial material from landfill

HYDROLOGY**Wetland Hydrology Indicators:**

Primary Indicators (minimum of one is required; check all that apply)

- | | |
|--|---|
| <input checked="" type="checkbox"/> Surface Water (A1) | <input type="checkbox"/> Aquatic Fauna (B13) |
| <input type="checkbox"/> High Water Table (A2) | <input type="checkbox"/> True Aquatic Plants (B14) |
| <input checked="" type="checkbox"/> Saturation (A3) | <input type="checkbox"/> Hydrogen Sulfide Odor (C1) |
| <input type="checkbox"/> Water Marks (B1) | <input type="checkbox"/> Oxidized Rhizospheres on Living Roots (C3) |
| <input type="checkbox"/> Sediment Deposits (B2) | <input type="checkbox"/> Presence of Reduced Iron (C4) |
| <input type="checkbox"/> Drift Deposits (B3) | <input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6) |
| <input type="checkbox"/> Algal Mat or Crust (B4) | <input type="checkbox"/> Thin Muck Surface (C7) |
| <input type="checkbox"/> Iron Deposits (B5) | <input type="checkbox"/> Gauge or Well Data (D9) |
| <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) | <input type="checkbox"/> Other (Explain in Remarks) |
| <input type="checkbox"/> Sparsely Vegetated Concave Surface (B8) | |
| <input type="checkbox"/> Water-Stained Leaves (B9) | |

Secondary Indicators (minimum of two required)

- | |
|--|
| <input type="checkbox"/> Surface Soil Cracks (B6) |
| <input type="checkbox"/> Drainage Patterns (B10) |
| <input type="checkbox"/> Dry-Season Water Table (C2) |
| <input type="checkbox"/> Crayfish Burrows (C8) |
| <input type="checkbox"/> Saturation Visible on Aerial Imagery (C9) |
| <input type="checkbox"/> Stunted or Stressed Plants (D1) |
| <input type="checkbox"/> Geomorphic Position (D2) |
| <input type="checkbox"/> FAC-Neutral Test (D5) |

Field Observations:

Surface water present?	Yes <u>X</u>	No <u> </u>	Depth (inches): <u>2</u>
Water table present?	Yes <u> </u>	No <u> </u>	Depth (inches): <u> </u>
Saturation present?	Yes <u>X</u>	No <u> </u>	Depth (inches): <u>0</u>

(includes capillary fringe)

Wetland hydrology present? Y

Describe recorded data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

sparse concave depression. Cricket Frogs, green frog

WETLAND DETERMINATION DATA FORM - Midwest Region

Project/Site South Dayton Landfill City/County: Moraine / Montgomery Sampling Date: 7/23/2013
 Applicant/Owner: CRA State: Ohio Sampling Point: 5
 Investigator(s): Scott Bush, David Blickwedel Section, Township, Range: _____
 Landform (hillslope, terrace, etc.): Terrace Local relief (concave, convex, none): Concave
 Slope (%): 0.1 Lat: 39.7265 Long: 84.22225 Datum: WGS84
 Soil Map Unit Name Gp _____ NWI Classification: N/A

Are climatic/hydrologic conditions of the site typical for this time of the year? Y (If no, explain in remarks)

Are vegetation _____, soil _____, or hydrology _____ significantly disturbed?

Are "normal circumstances" present? Yes

Are vegetation _____, soil _____, or hydrology _____ naturally problematic?

present? Yes

SUMMARY OF FINDINGS

(If needed, explain any answers in remarks.)

Hydrophytic vegetation present? <u>Y</u>	Is the sampled area within a wetland <u>Y</u> If yes, optional wetland site ID: _____
Hydric soil present? <u>Y</u>	
Wetland hydrology present? <u>Y</u>	

Remarks: (Explain alternative procedures here or in a separate report.)

Location is part of a superfund landfill Site, soil is highly variable

VEGETATION -- Use scientific names of plants.

Tree Stratum	(Plot size: <u>30</u>)	Absolute % Cover	Dominant Species	Indicator Status	Dominance Test Worksheet Number of Dominant Species that are OBL, FACW, or FAC: <u>4</u> (A) Total Number of Dominant Species Across all Strata: <u>4</u> (B) Percent of Dominant Species that are OBL, FACW, or FAC: <u>100.00%</u> (A/B)
1	<u>Populus deltoides</u>	<u>30</u>	<u>Y</u>	<u>FAC</u>	
2	<u>Platanus occidentalis</u>	<u>20</u>	<u>Y</u>	<u>FACW</u>	
3					
4					
5					
		<u>50</u>	<u>= Total Cover</u>		Prevalence Index Worksheet Total % Cover of: OBL species <u>40</u> x 1 = <u>40</u> FACW species <u>50</u> x 2 = <u>100</u> FAC species <u>60</u> x 3 = <u>180</u> FACU species <u>0</u> x 4 = <u>0</u> UPL species <u>0</u> x 5 = <u>0</u> Column totals <u>150</u> (A) <u>320</u> (B) Prevalence Index = B/A = <u>2.13</u>
Sapling/Shrub stratum	(Plot size: <u>15</u>)				
1					
2					
3					
4					
5					
		<u>0</u>	<u>= Total Cover</u>		
Herb stratum	(Plot size: <u>5</u>)				Hydrophytic Vegetation Indicators: <input type="checkbox"/> Rapid test for hydrophytic vegetation <input checked="" type="checkbox"/> Dominance test is >50% <input checked="" type="checkbox"/> Prevalence index is ≤3.0* Morphological adaptations* (provide supporting data in Remarks or on a separate sheet) Problematic hydrophytic vegetation* (explain) *Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic
1	<u>Toxicodendron radicans subsp. negundo</u>	<u>30</u>	<u>Y</u>	<u>FAC</u>	
2	<u>Phalaris arundinacea</u>	<u>30</u>	<u>Y</u>	<u>FACW</u>	
3	<u>Bidens connatus</u>	<u>10</u>	<u>N</u>	<u>OBL</u>	
4	<u>Lycopus uniflorus</u>	<u>10</u>	<u>N</u>	<u>OBL</u>	
5	<u>Leersia oryzoides</u>	<u>10</u>	<u>N</u>	<u>OBL</u>	
6	<u>Phyla lanceolata</u>	<u>10</u>	<u>N</u>	<u>OBL</u>	
7					
8					
9					
10					
		<u>100</u>	<u>= Total Cover</u>		
Woody vine stratum	(Plot size: _____)				Hydrophytic vegetation present? <u>Y</u>
1					
2					
		<u>0</u>	<u>= Total Cover</u>		

Remarks: (Include photo numbers here or on a separate sheet)

SOILSampling Point: 5**Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)**

Depth (Inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type*	Loc**		
0-18"	10YR2/1	100					fill sands	color due to parent material

*Type: C = Concentration, D = Depletion, RM = Reduced Matrix, MS = Masked Sand Grains. **Location: PL = Pore Lining, M = Matrix

Hydric Soil Indicators:

- | | |
|--|---|
| <input type="checkbox"/> Histisol (A1) | <input type="checkbox"/> Sandy Gleyed Matrix (S4) |
| <input type="checkbox"/> Histic Epipedon (A2) | <input type="checkbox"/> Sandy Redox (S5) |
| <input type="checkbox"/> Black Histic (A3) | <input type="checkbox"/> Stripped Matrix (S6) |
| <input type="checkbox"/> Hydrogen Sulfide (A4) | <input type="checkbox"/> Loamy Mucky Mineral (F1) |
| <input type="checkbox"/> Stratified Layers (A5) | <input type="checkbox"/> Loamy Gleyed Matrix (F2) |
| <input type="checkbox"/> 2 cm Muck (A10) | <input type="checkbox"/> Depleted Matrix (F3) |
| <input type="checkbox"/> Depleted Below Dark Surface (A11) | <input type="checkbox"/> Redox Dark Surface (F6) |
| <input type="checkbox"/> Thick Dark Surface (A12) | <input type="checkbox"/> Depleted Dark Surface (F7) |
| <input type="checkbox"/> Sandy Mucky Mineral (S1) | <input type="checkbox"/> Redox Depressions (F8) |
| <input type="checkbox"/> 5 cm Mucky Peat or Peat (S3) | |

Indicators for Problematic Hydric Soils:

- | |
|---|
| <input type="checkbox"/> Coast Prairie Redox (A16) (LRR K, L, R) |
| <input type="checkbox"/> Dark Surface (S7) (LRR K, L) |
| <input type="checkbox"/> 5 cm Mucky Peat or Peat (S3) (LRR K, L, R) |
| <input type="checkbox"/> Iron-Manganese Masses (F12) (LRR K, L, R) |
| <input type="checkbox"/> Very Shallow Dark Surface (TF12) |
| <input checked="" type="checkbox"/> Other (explain in remarks) |

*Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic

Restrictive Layer (if observed):
 Type: _____
 Depth (inches): _____
Hydric soil present? Y

Remarks:

"Soil" is composed of imported fill sand and color is due to the color of the sand. Assumed hydric.

HYDROLOGY**Wetland Hydrology Indicators:**Primary Indicators (minimum of one is required; check all that apply)

- | |
|--|
| <input type="checkbox"/> Surface Water (A1) |
| <input type="checkbox"/> High Water Table (A2) |
| <input checked="" type="checkbox"/> Saturation (A3) |
| <input type="checkbox"/> Water Marks (B1) |
| <input type="checkbox"/> Sediment Deposits (B2) |
| <input type="checkbox"/> Drift Deposits (B3) |
| <input type="checkbox"/> Algal Mat or Crust (B4) |
| <input type="checkbox"/> Iron Deposits (B5) |
| <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) |
| <input type="checkbox"/> Sparsely Vegetated Concave Surface (B8) |
| <input checked="" type="checkbox"/> Water-Stained Leaves (B9) |

- | |
|---|
| <input type="checkbox"/> Aquatic Fauna (B13) |
| <input type="checkbox"/> True Aquatic Plants (B14) |
| <input type="checkbox"/> Hydrogen Sulfide Odor (C1) |
| <input type="checkbox"/> Oxidized Rhizospheres on Living Roots (C3) |
| <input type="checkbox"/> Presence of Reduced Iron (C4) |
| <input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6) |
| <input type="checkbox"/> Thin Muck Surface (C7) |
| <input type="checkbox"/> Gauge or Well Data (D9) |
| <input type="checkbox"/> Other (Explain in Remarks) |

Secondary Indicators (minimum of two required)

- | |
|--|
| <input type="checkbox"/> Surface Soil Cracks (B6) |
| <input type="checkbox"/> Drainage Patterns (B10) |
| <input type="checkbox"/> Dry-Season Water Table (C2) |
| <input type="checkbox"/> Crayfish Burrows (C8) |
| <input type="checkbox"/> Saturation Visible on Aerial Imagery (C9) |
| <input type="checkbox"/> Stunted or Stressed Plants (D1) |
| <input checked="" type="checkbox"/> Geomorphic Position (D2) |
| <input type="checkbox"/> FAC-Neutral Test (D5) |

Field Observations:

Surface water present?	Yes <u>X</u>	No <u> </u>	Depth (inches): <u> </u>
Water table present?	Yes <u> </u>	No <u> </u>	Depth (inches): <u> </u>
Saturation present?	Yes <u>X</u>	No <u> </u>	Depth (inches): <u>0</u>

 (includes capillary fringe)

Wetland hydrology present? Y

Describe recorded data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM - Midwest Region

Project/Site South Dayton Landfill City/County: Moraine / Montgomery Sampling Date: 7/23/2013
 Applicant/Owner: CRA State: Ohio Sampling Point: 6
 Investigator(s): Scott Bush, David Blickwedel Section, Township, Range: _____
 Landform (hillslope, terrace, etc.): Terrace Local relief (concave, convex, none): Concave
 Slope (%): 1 Lat: 39.72654 Long: 84.22085 Datum: WGS 84
 Soil Map Unit Name Gp vWI Classification: NA

Are climatic/hydrologic conditions of the site typical for this time of the year? Y (If no, explain in remarks)

Are vegetation _____, soil _____, or hydrology _____ significantly disturbed?

Are "normal circumstances"

Are vegetation _____, soil _____, or hydrology _____ naturally problematic?

present? Yes

SUMMARY OF FINDINGS

(If needed, explain any answers in remarks.)

Hydrophytic vegetation present?	<u>N</u>	Is the sampled area within a wetland <u>N</u> If yes, optional wetland site ID: _____
Hydric soil present?	<u>N</u>	
Wetland hydrology present?	<u>N</u>	

Remarks: (Explain alternative procedures here or in a separate report.)

Location is a superfund landfill Site, soil is highly variable

VEGETATION -- Use scientific names of plants.

Tree Stratum	(Plot size: <u>30</u>)	Absolute % Cover	Dominant Species	Indicator Status
1	<u>Robinia pseudoacacia</u>	<u>30</u>	<u>Y</u>	<u>FACU</u>
2	<u>Populus deltoides</u>	<u>30</u>	<u>Y</u>	<u>FAC</u>
3	<u>Ailanthus altissima</u>	<u>10</u>	<u>N</u>	<u>NI</u>
4				
5				
		<u>70</u>	<u>= Total Cover</u>	

Sapling/Shrub stratum	(Plot size: <u>15</u>)	Absolute % Cover	Dominant Species	Indicator Status
1	<u>Robinia pseudoacacia</u>	<u>40</u>	<u>Y</u>	<u>FACU</u>
2	<u>Diervilla lonicera</u>	<u>40</u>	<u>Y</u>	<u>NI</u>
3				
4				
5				
		<u>80</u>	<u>= Total Cover</u>	

Herb stratum	(Plot size: <u>5</u>)	Absolute % Cover	Dominant Species	Indicator Status
1	<u>Coronilla varia</u>	<u>60</u>	<u>Y</u>	<u>NI</u>
2	<u>Verbena urticifolia</u>	<u>10</u>	<u>N</u>	<u>FAC</u>
3				
4				
5				
6				
7				
8				
9				
10				
		<u>70</u>	<u>= Total Cover</u>	

Woody vine stratum	(Plot size: <u>30</u>)	Absolute % Cover	Dominant Species	Indicator Status
1				
2				
		<u>0</u>	<u>= Total Cover</u>	

Dominance Test Worksheet
 Number of Dominant Species that are OBL, FACW, or FAC: 1 (A)
 Total Number of Dominant Species Across all Strata: 5 (B)
 Percent of Dominant Species that are OBL, FACW, or FAC: 20.00% (A/B)

Prevalence Index Worksheet
 Total % Cover of:
 OBL species 0 x 1 = 0
 FACW species 0 x 2 = 0
 FAC species 40 x 3 = 120
 FACU species 70 x 4 = 280
 UPL species 0 x 5 = 0
 Column totals 110 (A) 400 (B)
 Prevalence Index = B/A = 3.64

Hydrophytic Vegetation Indicators:
 _____ Rapid test for hydrophytic vegetation
 _____ Dominance test is >50%
 _____ Prevalence index is ≤3.0*
 _____ Morphological adaptations* (provide supporting data in Remarks or on a separate sheet)
 _____ Problematic hydrophytic vegetation* (explain)

*Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic

Hydrophytic vegetation present? N

Remarks: (Include photo numbers here or on a separate sheet)

SOILSampling Point: 6**Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)**

Depth (Inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type*	Loc**		
0-18"	10 yr 3/2	100					sand / debris	Color due to substrate

*Type: C = Concentration, D = Depletion, RM = Reduced Matrix, MS = Masked Sand Grains. **Location: PL = Pore Lining, M = Matrix

Hydric Soil Indicators:

- | | |
|--|---|
| <input type="checkbox"/> Histisol (A1) | <input type="checkbox"/> Sandy Gleyed Matrix (S4) |
| <input type="checkbox"/> Histic Epipedon (A2) | <input type="checkbox"/> Sandy Redox (S5) |
| <input type="checkbox"/> Black Histic (A3) | <input type="checkbox"/> Stripped Matrix (S6) |
| <input type="checkbox"/> Hydrogen Sulfide (A4) | <input type="checkbox"/> Loamy Mucky Mineral (F1) |
| <input type="checkbox"/> Stratified Layers (A5) | <input type="checkbox"/> Loamy Gleyed Matrix (F2) |
| <input type="checkbox"/> 2 cm Muck (A10) | <input type="checkbox"/> Depleted Matrix (F3) |
| <input type="checkbox"/> Depleted Below Dark Surface (A11) | <input type="checkbox"/> Redox Dark Surface (F6) |
| <input type="checkbox"/> Thick Dark Surface (A12) | <input type="checkbox"/> Depleted Dark Surface (F7) |
| <input type="checkbox"/> Sandy Mucky Mineral (S1) | <input type="checkbox"/> Redox Depressions (F8) |
| <input type="checkbox"/> 5 cm Mucky Peat or Peat (S3) | |

Indicators for Problematic Hydric Soils:

- | |
|---|
| <input type="checkbox"/> Coast Prairie Redox (A16) (LRR K, L, R) |
| <input type="checkbox"/> Dark Surface (S7) (LRR K, L) |
| <input type="checkbox"/> 5 cm Mucky Peat or Peat (S3) (LRR K, L, R) |
| <input type="checkbox"/> Iron-Manganese Masses (F12) (LRR K, L, R) |
| <input type="checkbox"/> Very Shallow Dark Surface (TF12) |
| <input type="checkbox"/> Other (explain in remarks) |

*Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic

Restrictive Layer (if observed):
 Type: _____
 Depth (inches): _____
Hydric soil present? N

Remarks:

HYDROLOGY**Wetland Hydrology Indicators:**

Primary Indicators (minimum of one is required; check all that apply)

- | |
|--|
| <input type="checkbox"/> Surface Water (A1) |
| <input type="checkbox"/> High Water Table (A2) |
| <input type="checkbox"/> Saturation (A3) |
| <input type="checkbox"/> Water Marks (B1) |
| <input type="checkbox"/> Sediment Deposits (B2) |
| <input type="checkbox"/> Drift Deposits (B3) |
| <input type="checkbox"/> Algal Mat or Crust (B4) |
| <input type="checkbox"/> Iron Deposits (B5) |
| <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) |
| <input type="checkbox"/> Sparsely Vegetated Concave Surface (B8) |
| <input type="checkbox"/> Water-Stained Leaves (B9) |

- | |
|---|
| <input type="checkbox"/> Aquatic Fauna (B13) |
| <input type="checkbox"/> True Aquatic Plants (B14) |
| <input type="checkbox"/> Hydrogen Sulfide Odor (C1) |
| <input type="checkbox"/> Oxidized Rhizospheres on Living Roots (C3) |
| <input type="checkbox"/> Presence of Reduced Iron (C4) |
| <input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6) |
| <input type="checkbox"/> Thin Muck Surface (C7) |
| <input type="checkbox"/> Gauge or Well Data (D9) |
| <input type="checkbox"/> Other (Explain in Remarks) |

Secondary Indicators (minimum of two required)

- | |
|--|
| <input type="checkbox"/> Surface Soil Cracks (B6) |
| <input type="checkbox"/> Drainage Patterns (B10) |
| <input type="checkbox"/> Dry-Season Water Table (C2) |
| <input type="checkbox"/> Crayfish Burrows (C8) |
| <input type="checkbox"/> Saturation Visible on Aerial Imagery (C9) |
| <input type="checkbox"/> Stunted or Stressed Plants (D1) |
| <input type="checkbox"/> Geomorphic Position (D2) |
| <input type="checkbox"/> FAC-Neutral Test (D5) |

Field Observations:

Surface water present?	Yes <input type="checkbox"/>	No <input type="checkbox"/>	Depth (inches): <input type="text"/>
Water table present?	Yes <input type="checkbox"/>	No <input type="checkbox"/>	Depth (inches): <input type="text"/>
Saturation present? (includes capillary fringe)	Yes <input type="checkbox"/>	No <input type="checkbox"/>	Depth (inches): <input type="text"/>

Wetland hydrology present? N

Describe recorded data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM - Midwest Region

Project/Site South Dayton Landfill City/County: Moraine / Montgomery Sampling Date: 7/23/2013
 Applicant/Owner: CRA State: Ohio Sampling Point: 7
 Investigator(s): Scott Bush, David Blickwedel Section, Township, Range: _____
 Landform (hillslope, terrace, etc.): Terrace Local relief (concave, convex, none): Concave
 Slope (%): 1 Lat: 39.72622 Long: 84.21923 Datum: WGS84
 Soil Map Unit Name Gp _____ NWI Classification: NA

Are climatic/hydrologic conditions of the site typical for this time of the year? Y (If no, explain in remarks)

Are vegetation _____, soil _____, or hydrology _____ significantly disturbed?

Are "normal circumstances"

Are vegetation _____, soil _____, or hydrology _____ naturally problematic?

present? Yes

SUMMARY OF FINDINGS

(If needed, explain any answers in remarks.)

Hydrophytic vegetation present? <u>N</u>	Is the sampled area within a wetland <u>N</u> If yes, optional wetland site ID: _____
Hydric soil present? <u>N</u>	
Wetland hydrology present? <u>N</u>	

Remarks: (Explain alternative procedures here or in a separate report.)

Location is part of a superfund landfill Site, soils are highly variable

VEGETATION -- Use scientific names of plants.

Tree Stratum	(Plot size: <u>30</u>)	Absolute % Cover	Dominant Species	Indicator Status	Dominance Test Worksheet Number of Dominant Species that are OBL, FACW, or FAC: <u>0</u> (A) Total Number of Dominant Species Across all Strata: <u>2</u> (B) Percent of Dominant Species that are OBL, FACW, or FAC: <u>0.00%</u> (A/B)
1					
2					
3					
4					
5					
		<u>0</u>	= Total Cover		Prevalence Index Worksheet Total % Cover of: OBL species <u>0</u> x 1 = <u>0</u> FACW species <u>0</u> x 2 = <u>0</u> FAC species <u>10</u> x 3 = <u>30</u> FACU species <u>30</u> x 4 = <u>120</u> UPL species <u>20</u> x 5 = <u>100</u> Column totals <u>60</u> (A) <u>250</u> (B) Prevalence Index = B/A = <u>4.17</u>
Sapling/Shrub stratum	(Plot size: <u>15</u>)				
1					
2					
3					
4					
5					
		<u>0</u>	= Total Cover		
Herb stratum	(Plot size: <u>5</u>)				Hydrophytic Vegetation Indicators: _____ Rapid test for hydrophytic vegetation _____ Dominance test is >50% _____ Prevalence index is ≤3.0* _____ Morphological adaptations* (provide supporting data in Remarks or on a separate sheet) _____ Problematic hydrophytic vegetation* (explain) _____ *Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic
1	<u>Dipsacus fullonum subsp. sylvestris</u>	<u>30</u>	<u>Y</u>	<u>NI</u>	
2	<u>Solidago canadensis</u>	<u>30</u>	<u>Y</u>	<u>FACU</u>	
3	<u>Verbascum thapsus</u>	<u>10</u>	<u>N</u>	<u>UPL</u>	
4	<u>Toxicodendron radicans subsp. negundo</u>	<u>10</u>	<u>N</u>	<u>FAC</u>	
5	<u>Verbascum thapsus</u>	<u>10</u>	<u>N</u>	<u>UPL</u>	
6					
7					
8					
9					
10					
		<u>90</u>	= Total Cover		
Woody vine stratum	(Plot size: <u>30</u>)				Hydrophytic vegetation present? <u>N</u>
1					
2					
		<u>0</u>	= Total Cover		

Remarks: (Include photo numbers here or on a separate sheet)

SOILSampling Point: 7**Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)**

Depth (Inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type*	Loc**		
0-18"	N/A	100					Pallets	Fill and pallets

*Type: C = Concentration, D = Depletion, RM = Reduced Matrix, MS = Masked Sand Grains. **Location: PL = Pore Lining, M = Matrix

Hydric Soil Indicators:

- | | |
|--|---|
| <input type="checkbox"/> Histisol (A1) | <input type="checkbox"/> Sandy Gleyed Matrix (S4) |
| <input type="checkbox"/> Histic Epipedon (A2) | <input type="checkbox"/> Sandy Redox (S5) |
| <input type="checkbox"/> Black Histic (A3) | <input type="checkbox"/> Stripped Matrix (S6) |
| <input type="checkbox"/> Hydrogen Sulfide (A4) | <input type="checkbox"/> Loamy Mucky Mineral (F1) |
| <input type="checkbox"/> Stratified Layers (A5) | <input type="checkbox"/> Loamy Gleyed Matrix (F2) |
| <input type="checkbox"/> 2 cm Muck (A10) | <input type="checkbox"/> Depleted Matrix (F3) |
| <input type="checkbox"/> Depleted Below Dark Surface (A11) | <input type="checkbox"/> Redox Dark Surface (F6) |
| <input type="checkbox"/> Thick Dark Surface (A12) | <input type="checkbox"/> Depleted Dark Surface (F7) |
| <input type="checkbox"/> Sandy Mucky Mineral (S1) | <input type="checkbox"/> Redox Depressions (F8) |
| <input type="checkbox"/> 5 cm Mucky Peat or Peat (S3) | |

Indicators for Problematic Hydric Soils:

- | |
|---|
| <input type="checkbox"/> Coast Prairie Redox (A16) (LRR K, L, R) |
| <input type="checkbox"/> Dark Surface (S7) (LRR K, L) |
| <input type="checkbox"/> 5 cm Mucky Peat or Peat (S3) (LRR K, L, R) |
| <input type="checkbox"/> Iron-Manganese Masses (F12) (LRR K, L, R) |
| <input type="checkbox"/> Very Shallow Dark Surface (TF12) |
| <input type="checkbox"/> Other (explain in remarks) |

*Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic

Restrictive Layer (if observed):
 Type: _____
 Depth (inches): _____
Hydric soil present? N

Remarks:

HYDROLOGY**Wetland Hydrology Indicators:**Primary Indicators (minimum of one is required; check all that apply)

- | |
|--|
| <input type="checkbox"/> Surface Water (A1) |
| <input type="checkbox"/> High Water Table (A2) |
| <input type="checkbox"/> Saturation (A3) |
| <input type="checkbox"/> Water Marks (B1) |
| <input type="checkbox"/> Sediment Deposits (B2) |
| <input type="checkbox"/> Drift Deposits (B3) |
| <input type="checkbox"/> Algal Mat or Crust (B4) |
| <input type="checkbox"/> Iron Deposits (B5) |
| <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) |
| <input type="checkbox"/> Sparsely Vegetated Concave Surface (B8) |
| <input type="checkbox"/> Water-Stained Leaves (B9) |

- | |
|---|
| <input type="checkbox"/> Aquatic Fauna (B13) |
| <input type="checkbox"/> True Aquatic Plants (B14) |
| <input type="checkbox"/> Hydrogen Sulfide Odor (C1) |
| <input type="checkbox"/> Oxidized Rhizospheres on Living Roots (C3) |
| <input type="checkbox"/> Presence of Reduced Iron (C4) |
| <input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6) |
| <input type="checkbox"/> Thin Muck Surface (C7) |
| <input type="checkbox"/> Gauge or Well Data (D9) |
| <input type="checkbox"/> Other (Explain in Remarks) |

Secondary Indicators (minimum of two required)

- | |
|--|
| <input type="checkbox"/> Surface Soil Cracks (B6) |
| <input type="checkbox"/> Drainage Patterns (B10) |
| <input type="checkbox"/> Dry-Season Water Table (C2) |
| <input type="checkbox"/> Crayfish Burrows (C8) |
| <input type="checkbox"/> Saturation Visible on Aerial Imagery (C9) |
| <input type="checkbox"/> Stunted or Stressed Plants (D1) |
| <input type="checkbox"/> Geomorphic Position (D2) |
| <input type="checkbox"/> FAC-Neutral Test (D5) |

Field Observations:

Surface water present?	Yes <input type="checkbox"/> No <input type="checkbox"/>	Depth (inches):	_____
Water table present?	Yes <input type="checkbox"/> No <input type="checkbox"/>	Depth (inches):	_____
Saturation present?	Yes <input type="checkbox"/> No <input type="checkbox"/>	Depth (inches):	_____

 (includes capillary fringe)

Wetland hydrology present? N

Describe recorded data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

This data point is in an upland drainage ditch filled with ground up pallets

WETLAND DETERMINATION DATA FORM - Midwest Region

Project/Site South Dayton Landfill City/County: Moraine / Montgomery Sampling Date: 7/23/2013
 Applicant/Owner: CRA State: Ohio Sampling Point: 8
 Investigator(s): Scott Bush, David Blickwedel Section, Township, Range: _____
 Landform (hillslope, terrace, etc.): Terrace Local relief (concave, convex, none): None
 Slope (%): 0.1 Lat: 39.72478 Long: 84.22164 Datum: WGS84
 Soil Map Unit Name Gp _____ NWI Classification: NA

Are climatic/hydrologic conditions of the site typical for this time of the year? Y (If no, explain in remarks)

Are vegetation _____, soil _____, or hydrology _____ significantly disturbed?

Are "normal circumstances" present? Yes

Are vegetation _____, soil _____, or hydrology _____ naturally problematic?

present? Yes

SUMMARY OF FINDINGS

(If needed, explain any answers in remarks.)

Hydrophytic vegetation present? <u>Y</u>	Is the sampled area within a wetland <u>Y</u> If yes, optional wetland site ID: <u>Quarry Pond</u>
Hydric soil present? <u>Y</u>	
Wetland hydrology present? <u>Y</u>	
Remarks: (Explain alternative procedures here or in a separate report.) <p style="text-align: center;">Historic fill Soil</p>	

VEGETATION -- Use scientific names of plants.

Tree Stratum	(Plot size: <u>30</u>)	Absolute % Cover	Dominant Species	Indicator Status	Dominance Test Worksheet Number of Dominant Species that are OBL, FACW, or FAC: <u>4</u> (A) Total Number of Dominant Species Across all Strata: <u>4</u> (B) Percent of Dominant Species that are OBL, FACW, or FAC: <u>100.00%</u> (A/B)
1					
2					
3					
4					
5					
		<u>0</u>	= Total Cover		Prevalence Index Worksheet Total % Cover of: OBL species <u>40</u> x 1 = <u>40</u> FACW species <u>50</u> x 2 = <u>100</u> FAC species <u>0</u> x 3 = <u>0</u> FACU species <u>10</u> x 4 = <u>40</u> UPL species <u>0</u> x 5 = <u>0</u> Column totals <u>100</u> (A) <u>180</u> (B) Prevalence Index = B/A = <u>1.80</u>
Sapling/Shrub stratum	(Plot size: <u>15</u>)				
1					
2					
3					
4					
5					
		<u>0</u>	= Total Cover		
Herb stratum	(Plot size: <u>5</u>)				Hydrophytic Vegetation Indicators: <input type="checkbox"/> Rapid test for hydrophytic vegetation <input checked="" type="checkbox"/> Dominance test is >50% <input checked="" type="checkbox"/> Prevalence index is ≤3.0* Morphological adaptations* (provide supporting data in Remarks or on a separate sheet) Problematic hydrophytic vegetation* (explain) *Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic
1	<u>Cyperus esculentus</u>	<u>30</u>	<u>Y</u>	<u>FACW</u>	
2	<u>Phyla lanceolata</u>	<u>20</u>	<u>Y</u>	<u>OBL</u>	
3	<u>Lythrum salicaria</u>	<u>20</u>	<u>Y</u>	<u>OBL</u>	
4	<u>Lysimachia nummularia</u>	<u>20</u>	<u>Y</u>	<u>FACW</u>	
5	<u>Ambrosia artemisiifolia</u>	<u>10</u>	<u>N</u>	<u>FACU</u>	
6					
7					
8					
9					
10					
		<u>100</u>	= Total Cover		
Woody vine stratum	(Plot size: <u>30</u>)				Hydrophytic vegetation present? <u>Y</u>
1					
2					
		<u>0</u>	= Total Cover		

Remarks: (Include photo numbers here or on a separate sheet)

On periodically flooded terrace along Quarry Pond.

SOILSampling Point: 8**Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)**

Depth (Inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type*	Loc**		
0-18"	10 yr 4/2	98	10YR 4/4	2	C	M	sandy loam and gravel	Historical fill

*Type: C = Concentration, D = Depletion, RM = Reduced Matrix, MS = Masked Sand Grains. **Location: PL = Pore Lining, M = Matrix

Hydric Soil Indicators:

- | | |
|--|--|
| <input type="checkbox"/> Histisol (A1) | <input type="checkbox"/> Sandy Gleyed Matrix (S4) |
| <input type="checkbox"/> Histic Epipedon (A2) | <input type="checkbox"/> Sandy Redox (S5) |
| <input type="checkbox"/> Black Histic (A3) | <input type="checkbox"/> Stripped Matrix (S6) |
| <input type="checkbox"/> Hydrogen Sulfide (A4) | <input type="checkbox"/> Loamy Mucky Mineral (F1) |
| <input type="checkbox"/> Stratified Layers (A5) | <input type="checkbox"/> Loamy Gleyed Matrix (F2) |
| <input type="checkbox"/> 2 cm Muck (A10) | <input checked="" type="checkbox"/> Depleted Matrix (F3) |
| <input type="checkbox"/> Depleted Below Dark Surface (A11) | <input type="checkbox"/> Redox Dark Surface (F6) |
| <input type="checkbox"/> Thick Dark Surface (A12) | <input type="checkbox"/> Depleted Dark Surface (F7) |
| <input type="checkbox"/> Sandy Mucky Mineral (S1) | <input type="checkbox"/> Redox Depressions (F8) |
| <input type="checkbox"/> 5 cm Mucky Peat or Peat (S3) | |

Indicators for Problematic Hydric Soils:

- | |
|---|
| <input type="checkbox"/> Coast Prairie Redox (A16) (LRR K, L, R) |
| <input type="checkbox"/> Dark Surface (S7) (LRR K, L) |
| <input type="checkbox"/> 5 cm Mucky Peat or Peat (S3) (LRR K, L, R) |
| <input type="checkbox"/> Iron-Manganese Masses (F12) (LRR K, L, R) |
| <input type="checkbox"/> Very Shallow Dark Surface (TF12) |
| <input type="checkbox"/> Other (explain in remarks) |

*Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic

Restrictive Layer (if observed):Type: _____
Depth (inches): _____Hydric soil present? Y

Remarks:

HYDROLOGY**Wetland Hydrology Indicators:**

Primary Indicators (minimum of one is required; check all that apply)

- | | |
|--|---|
| <input type="checkbox"/> Surface Water (A1) | <input type="checkbox"/> Aquatic Fauna (B13) |
| <input type="checkbox"/> High Water Table (A2) | <input type="checkbox"/> True Aquatic Plants (B14) |
| <input checked="" type="checkbox"/> Saturation (A3) | <input type="checkbox"/> Hydrogen Sulfide Odor (C1) |
| <input type="checkbox"/> Water Marks (B1) | <input type="checkbox"/> Oxidized Rhizospheres on Living Roots (C3) |
| <input type="checkbox"/> Sediment Deposits (B2) | <input type="checkbox"/> Presence of Reduced Iron (C4) |
| <input type="checkbox"/> Drift Deposits (B3) | <input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6) |
| <input type="checkbox"/> Algal Mat or Crust (B4) | <input type="checkbox"/> Thin Muck Surface (C7) |
| <input type="checkbox"/> Iron Deposits (B5) | <input type="checkbox"/> Gauge or Well Data (D9) |
| <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) | <input type="checkbox"/> Other (Explain in Remarks) |
| <input type="checkbox"/> Sparsely Vegetated Concave Surface (B8) | |
| <input type="checkbox"/> Water-Stained Leaves (B9) | |

Secondary Indicators (minimum of two required)

- | |
|--|
| <input type="checkbox"/> Surface Soil Cracks (B6) |
| <input type="checkbox"/> Drainage Patterns (B10) |
| <input type="checkbox"/> Dry-Season Water Table (C2) |
| <input type="checkbox"/> Crayfish Burrows (C8) |
| <input type="checkbox"/> Saturation Visible on Aerial Imagery (C9) |
| <input type="checkbox"/> Stunted or Stressed Plants (D1) |
| <input type="checkbox"/> Geomorphic Position (D2) |
| <input type="checkbox"/> FAC-Neutral Test (D5) |

Field Observations:

Surface water present?	Yes <input type="checkbox"/> No <input type="checkbox"/>	Depth (inches):	_____
Water table present?	Yes <input type="checkbox"/> No <input type="checkbox"/>	Depth (inches):	_____
Saturation present?	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	Depth (inches):	<u>4</u>

Wetland hydrology present? Y

Describe recorded data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

Palustrine, emergent, scrub shrub, associated with a swale and low terrace

SOILSampling Point: 9**Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)**

Depth (Inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type*	Loc**		
0-18"	10 yr 4/4						LS w/ 20% gravel	

*Type: C = Concentration, D = Depletion, RM = Reduced Matrix, MS = Masked Sand Grains. **Location: PL = Pore Lining, M = Matrix

Hydric Soil Indicators:

- | | |
|--|---|
| <input type="checkbox"/> Histisol (A1) | <input type="checkbox"/> Sandy Gleyed Matrix (S4) |
| <input type="checkbox"/> Histic Epipedon (A2) | <input type="checkbox"/> Sandy Redox (S5) |
| <input type="checkbox"/> Black Histic (A3) | <input type="checkbox"/> Stripped Matrix (S6) |
| <input type="checkbox"/> Hydrogen Sulfide (A4) | <input type="checkbox"/> Loamy Mucky Mineral (F1) |
| <input type="checkbox"/> Stratified Layers (A5) | <input type="checkbox"/> Loamy Gleyed Matrix (F2) |
| <input type="checkbox"/> 2 cm Muck (A10) | <input type="checkbox"/> Depleted Matrix (F3) |
| <input type="checkbox"/> Depleted Below Dark Surface (A11) | <input type="checkbox"/> Redox Dark Surface (F6) |
| <input type="checkbox"/> Thick Dark Surface (A12) | <input type="checkbox"/> Depleted Dark Surface (F7) |
| <input type="checkbox"/> Sandy Mucky Mineral (S1) | <input type="checkbox"/> Redox Depressions (F8) |
| <input type="checkbox"/> 5 cm Mucky Peat or Peat (S3) | |

Indicators for Problematic Hydric Soils:

- | |
|---|
| <input type="checkbox"/> Coast Prairie Redox (A16) (LRR K, L, R) |
| <input type="checkbox"/> Dark Surface (S7) (LRR K, L) |
| <input type="checkbox"/> 5 cm Mucky Peat or Peat (S3) (LRR K, L, R) |
| <input type="checkbox"/> Iron-Manganese Masses (F12) (LRR K, L, R) |
| <input type="checkbox"/> Very Shallow Dark Surface (TF12) |
| <input type="checkbox"/> Other (explain in remarks) |

*Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic

Restrictive Layer (if observed):
 Type: _____
 Depth (inches): _____
Hydric soil present? N

Remarks:

HYDROLOGY**Wetland Hydrology Indicators:**Primary Indicators (minimum of one is required; check all that apply)

- | |
|--|
| <input type="checkbox"/> Surface Water (A1) |
| <input type="checkbox"/> High Water Table (A2) |
| <input type="checkbox"/> Saturation (A3) |
| <input type="checkbox"/> Water Marks (B1) |
| <input type="checkbox"/> Sediment Deposits (B2) |
| <input type="checkbox"/> Drift Deposits (B3) |
| <input type="checkbox"/> Algal Mat or Crust (B4) |
| <input type="checkbox"/> Iron Deposits (B5) |
| <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) |
| <input type="checkbox"/> Sparsely Vegetated Concave Surface (B8) |
| <input type="checkbox"/> Water-Stained Leaves (B9) |

- | |
|---|
| <input type="checkbox"/> Aquatic Fauna (B13) |
| <input type="checkbox"/> True Aquatic Plants (B14) |
| <input type="checkbox"/> Hydrogen Sulfide Odor (C1) |
| <input type="checkbox"/> Oxidized Rhizospheres on Living Roots (C3) |
| <input type="checkbox"/> Presence of Reduced Iron (C4) |
| <input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6) |
| <input type="checkbox"/> Thin Muck Surface (C7) |
| <input type="checkbox"/> Gauge or Well Data (D9) |
| <input type="checkbox"/> Other (Explain in Remarks) |

Secondary Indicators (minimum of two required)

- | |
|--|
| <input type="checkbox"/> Surface Soil Cracks (B6) |
| <input type="checkbox"/> Drainage Patterns (B10) |
| <input type="checkbox"/> Dry-Season Water Table (C2) |
| <input type="checkbox"/> Crayfish Burrows (C8) |
| <input type="checkbox"/> Saturation Visible on Aerial Imagery (C9) |
| <input type="checkbox"/> Stunted or Stressed Plants (D1) |
| <input type="checkbox"/> Geomorphic Position (D2) |
| <input type="checkbox"/> FAC-Neutral Test (D5) |

Field Observations:

Surface water present?	Yes <input type="checkbox"/> No <input type="checkbox"/>	Depth (inches): <input type="text"/>
Water table present?	Yes <input type="checkbox"/> No <input type="checkbox"/>	Depth (inches): <input type="text"/>
Saturation present?	Yes <input type="checkbox"/> No <input type="checkbox"/>	Depth (inches): <input type="text"/>

 (includes capillary fringe)

Wetland hydrology present? N

Describe recorded data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM - Midwest Region

Project/Site South Dayton Landfill City/County: Moraine / Montgomery Sampling Date: 7/22/2013
 Applicant/Owner: CRA State: Ohio Sampling Point: 10
 Investigator(s): Scott Bush, David Blickwedel Section, Township, Range: _____
 Landform (hillslope, terrace, etc.): Terrace Hillside Local relief (concave, convex, none): None
 Slope (%): _____ Lat: 39.72456 Long: 84.22454 Datum: WGS84
 Soil Map Unit Name Gp _____ NWI Classification: NA

Are climatic/hydrologic conditions of the site typical for this time of the year? Y (If no, explain in remarks)

Are vegetation _____, soil _____, or hydrology _____ significantly disturbed?

Are "normal circumstances" present? Yes

Are vegetation _____, soil _____, or hydrology _____ naturally problematic?

present? Yes

SUMMARY OF FINDINGS

(If needed, explain any answers in remarks.)

Hydrophytic vegetation present? <u>N</u>	Is the sampled area within a wetland <u>N</u> If yes, optional wetland site ID: _____
Hydric soil present? <u>N</u>	
Wetland hydrology present? <u>N</u>	

Remarks: (Explain alternative procedures here or in a separate report.)

Historic fill soil

VEGETATION -- Use scientific names of plants.

Tree Stratum	(Plot size: _____)	Absolute % Cover	Dominant Species	Indicator Status	Dominance Test Worksheet Number of Dominant Species that are OBL, FACW, or FAC: <u>2</u> (A) Total Number of Dominant Species Across all Strata: <u>6</u> (B) Percent of Dominant Species that are OBL, FACW, or FAC: <u>33.33%</u> (A/B)
1	<u>Robinia pseudoacacia</u>	10	Y	FACU	
2	_____	_____	_____	_____	
3	_____	_____	_____	_____	
4	_____	_____	_____	_____	
5	_____	_____	_____	_____	
		10	= Total Cover		Prevalence Index Worksheet Total % Cover of: OBL species <u>0</u> x 1 = <u>0</u> FACW species <u>0</u> x 2 = <u>0</u> FAC species <u>25</u> x 3 = <u>75</u> FACU species <u>30</u> x 4 = <u>120</u> UPL species <u>0</u> x 5 = <u>0</u> Column totals <u>55</u> (A) <u>195</u> (B) Prevalence Index = B/A = <u>3.55</u>
Sapling/Shrub stratum	(Plot size: _____)	Absolute % Cover	Dominant Species	Indicator Status	
1	<u>Diervilla lonicera</u>	75	Y	NI	
2	_____	_____	_____	_____	
3	_____	_____	_____	_____	
4	_____	_____	_____	_____	
5	_____	_____	_____	_____	
		75	= Total Cover		
Herb stratum	(Plot size: _____)	Absolute % Cover	Dominant Species	Indicator Status	Hydrophytic Vegetation Indicators: _____ Rapid test for hydrophytic vegetation _____ Dominance test is >50% _____ Prevalence index is ≤3.0* _____ Morphological adaptations* (provide supporting data in Remarks or on a separate sheet) _____ Problematic hydrophytic vegetation* (explain) _____ *Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic
1	<u>Ipomoea purpurea</u>	10	Y	FACU	
2	<u>Celtis occidentalis</u>	10	Y	FAC	
3	<u>Vitis aestivalis</u>	10	Y	FACU	
4	<u>Nepeta cataria</u>	10	Y	FAC	
5	<u>Alliaria petiolata</u>	5	N	FAC	
6	_____	_____	_____	_____	
7	_____	_____	_____	_____	
8	_____	_____	_____	_____	
9	_____	_____	_____	_____	
10	_____	_____	_____	_____	
		45	= Total Cover		
Woody vine stratum	(Plot size: _____)	Absolute % Cover	Dominant Species	Indicator Status	Hydrophytic vegetation present? <u>N</u>
1	_____	_____	_____	_____	
2	_____	_____	_____	_____	
		0	= Total Cover		

Remarks: (Include photo numbers here or on a separate sheet)

SOIL

Sampling Point: 10

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (Inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type*	Loc**		
0-6"	10 yr 3/3						Sil w/ gravel 5%	
6-12"	10yr 4/4						Clay	
12-18"	10 yr 4/6						Clay w/ Gravel 5%	

*Type: C = Concentration, D = Depletion, RM = Reduced Matrix, MS = Masked Sand Grains. **Location: PL = Pore Lining, M = Matrix

Hydric Soil Indicators:

- | | |
|--|---|
| <input type="checkbox"/> Histisol (A1) | <input type="checkbox"/> Sandy Gleyed Matrix (S4) |
| <input type="checkbox"/> Histic Epipedon (A2) | <input type="checkbox"/> Sandy Redox (S5) |
| <input type="checkbox"/> Black Histic (A3) | <input type="checkbox"/> Stripped Matrix (S6) |
| <input type="checkbox"/> Hydrogen Sulfide (A4) | <input type="checkbox"/> Loamy Mucky Mineral (F1) |
| <input type="checkbox"/> Stratified Layers (A5) | <input type="checkbox"/> Loamy Gleyed Matrix (F2) |
| <input type="checkbox"/> 2 cm Muck (A10) | <input type="checkbox"/> Depleted Matrix (F3) |
| <input type="checkbox"/> Depleted Below Dark Surface (A11) | <input type="checkbox"/> Redox Dark Surface (F6) |
| <input type="checkbox"/> Thick Dark Surface (A12) | <input type="checkbox"/> Depleted Dark Surface (F7) |
| <input type="checkbox"/> Sandy Mucky Mineral (S1) | <input type="checkbox"/> Redox Depressions (F8) |
| <input type="checkbox"/> 5 cm Mucky Peat or Peat (S3) | |

Indicators for Problematic Hydric Soils:

- | |
|---|
| <input type="checkbox"/> Coast Prairie Redox (A16) (LRR K, L, R) |
| <input type="checkbox"/> Dark Surface (S7) (LRR K, L) |
| <input type="checkbox"/> 5 cm Mucky Peat or Peat (S3) (LRR K, L, R) |
| <input type="checkbox"/> Iron-Manganese Masses (F12) (LRR K, L, R) |
| <input type="checkbox"/> Very Shallow Dark Surface (TF12) |
| <input type="checkbox"/> Other (explain in remarks) |

*Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic

Restrictive Layer (if observed):
 Type: _____
 Depth (inches): _____
Hydric soil present? N

Remarks:

HYDROLOGY**Wetland Hydrology Indicators:**Primary Indicators (minimum of one is required; check all that apply)

- | | |
|--|---|
| <input type="checkbox"/> Surface Water (A1) | <input type="checkbox"/> Aquatic Fauna (B13) |
| <input type="checkbox"/> High Water Table (A2) | <input type="checkbox"/> True Aquatic Plants (B14) |
| <input type="checkbox"/> Saturation (A3) | <input type="checkbox"/> Hydrogen Sulfide Odor (C1) |
| <input type="checkbox"/> Water Marks (B1) | <input type="checkbox"/> Oxidized Rhizospheres on Living Roots (C3) |
| <input type="checkbox"/> Sediment Deposits (B2) | <input type="checkbox"/> Presence of Reduced Iron (C4) |
| <input type="checkbox"/> Drift Deposits (B3) | <input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6) |
| <input type="checkbox"/> Algal Mat or Crust (B4) | <input type="checkbox"/> Thin Muck Surface (C7) |
| <input type="checkbox"/> Iron Deposits (B5) | <input type="checkbox"/> Gauge or Well Data (D9) |
| <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) | <input type="checkbox"/> Other (Explain in Remarks) |
| <input type="checkbox"/> Sparsely Vegetated Concave Surface (B8) | |
| <input type="checkbox"/> Water-Stained Leaves (B9) | |

Secondary Indicators (minimum of two required)

- | |
|--|
| <input type="checkbox"/> Surface Soil Cracks (B6) |
| <input type="checkbox"/> Drainage Patterns (B10) |
| <input type="checkbox"/> Dry-Season Water Table (C2) |
| <input type="checkbox"/> Crayfish Burrows (C8) |
| <input type="checkbox"/> Saturation Visible on Aerial Imagery (C9) |
| <input type="checkbox"/> Stunted or Stressed Plants (D1) |
| <input type="checkbox"/> Geomorphic Position (D2) |
| <input type="checkbox"/> FAC-Neutral Test (D5) |

Field Observations:

Surface water present?	Yes <input type="checkbox"/>	No <input type="checkbox"/>	Depth (inches):	_____
Water table present?	Yes <input type="checkbox"/>	No <input type="checkbox"/>	Depth (inches):	_____
Saturation present?	Yes <input type="checkbox"/>	No <input type="checkbox"/>	Depth (inches):	_____

 (includes capillary fringe)

Wetland hydrology present? N

Describe recorded data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM - Midwest Region

Project/Site South Dayton Landfill City/County: Moraine / Montgomery Sampling Date: 7/22/2013
 Applicant/Owner: CRA State: Ohio Sampling Point: 11
 Investigator(s): Scott Bush, David Blickwedel Section, Township, Range: _____
 Landform (hillslope, terrace, etc.): slope Local relief (concave, convex, none): None
 Slope (%): 0 Lat: 39.72305 Long: 84.22373 Datum: WGS 84
 Soil Map Unit Name GP NWI Classification: NA

Are climatic/hydrologic conditions of the site typical for this time of the year? Y (If no, explain in remarks)

Are vegetation _____, soil _____, or hydrology _____ significantly disturbed?

Are "normal circumstances"

Are vegetation _____, soil _____, or hydrology _____ naturally problematic?

present? Yes

SUMMARY OF FINDINGS

(If needed, explain any answers in remarks.)

Hydrophytic vegetation present? <u>N</u>	Is the sampled area within a wetland <u>N</u> If yes, optional wetland site ID: _____
Hydric soil present? <u>N</u>	
Wetland hydrology present? <u>N</u>	
Remarks: (Explain alternative procedures here or in a separate report.) <div style="text-align: center;">Historic fill soil</div>	

VEGETATION -- Use scientific names of plants.

Tree Stratum	(Plot size: <u>30</u>)	Absolute % Cover	Dominant Species	Indicator Status	Dominance Test Worksheet Number of Dominant Species that are OBL, FACW, or FAC: <u>0</u> (A) Total Number of Dominant Species Across all Strata: <u>3</u> (B) Percent of Dominant Species that are OBL, FACW, or FAC: <u>0.00%</u> (A/B)
1 <u>Ulmus pumila</u>		5	Y	UPL	
2 _____					
3 _____					
4 _____					
5 _____					
		5	= Total Cover		Prevalence Index Worksheet Total % Cover of: OBL species <u>0</u> x 1 = <u>0</u> FACW species <u>0</u> x 2 = <u>0</u> FAC species <u>5</u> x 3 = <u>15</u> FACU species <u>92</u> x 4 = <u>368</u> UPL species <u>5</u> x 5 = <u>25</u> Column totals <u>102</u> (A) <u>408</u> (B) Prevalence Index = B/A = <u>4.00</u>
Sapling/Shrub stratum (Plot size: <u>15</u>)					
1 <u>Diervilla lonicera</u>		50	Y	NI	
2 <u>Rhamnus lanceolata</u>		10	N	NI	
3 _____					
4 _____					
		60	= Total Cover		
Herb stratum (Plot size: <u>5</u>)					Hydrophytic Vegetation Indicators: _____ Rapid test for hydrophytic vegetation _____ Dominance test is >50% _____ Prevalence index is ≤3.0* _____ Morphological adaptations* (provide supporting data in Remarks or on a separate sheet) _____ Problematic hydrophytic vegetation* (explain) _____ *Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic
1 <u>Digitaria sanguinalis</u>		80	Y	FACU	
2 <u>Ambrosia artemisiifolia</u>		10	N	FACU	
3 <u>Medicago lupulina</u>		5	N	FAC	
4 <u>Oxalis corniculata</u>		2	N	FACU	
5 _____					
6 _____					
7 _____					
8 _____					
9 _____					
		97	= Total Cover		
Woody vine stratum (Plot size: _____)					Hydrophytic vegetation present? <u>N</u>
1 _____					
2 _____					
		0	= Total Cover		

Remarks: (Include photo numbers here or on a separate sheet)

SOIL

Sampling Point: 11

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (Inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type*	Loc**		
0-12"	10yr 3/3						Silt and gravel	
12" +							refusal	Well Drained Gravel

*Type: C = Concentration, D = Depletion, RM = Reduced Matrix, MS = Masked Sand Grains. **Location: PL = Pore Lining, M = Matrix

Hydric Soil Indicators:

- | | |
|--|---|
| <input type="checkbox"/> Histisol (A1) | <input type="checkbox"/> Sandy Gleyed Matrix (S4) |
| <input type="checkbox"/> Histic Epipedon (A2) | <input type="checkbox"/> Sandy Redox (S5) |
| <input type="checkbox"/> Black Histic (A3) | <input type="checkbox"/> Stripped Matrix (S6) |
| <input type="checkbox"/> Hydrogen Sulfide (A4) | <input type="checkbox"/> Loamy Mucky Mineral (F1) |
| <input type="checkbox"/> Stratified Layers (A5) | <input type="checkbox"/> Loamy Gleyed Matrix (F2) |
| <input type="checkbox"/> 2 cm Muck (A10) | <input type="checkbox"/> Depleted Matrix (F3) |
| <input type="checkbox"/> Depleted Below Dark Surface (A11) | <input type="checkbox"/> Redox Dark Surface (F6) |
| <input type="checkbox"/> Thick Dark Surface (A12) | <input type="checkbox"/> Depleted Dark Surface (F7) |
| <input type="checkbox"/> Sandy Mucky Mineral (S1) | <input type="checkbox"/> Redox Depressions (F8) |
| <input type="checkbox"/> 5 cm Mucky Peat or Peat (S3) | |

Indicators for Problematic Hydric Soils:

- | |
|---|
| <input type="checkbox"/> Coast Prairie Redox (A16) (LRR K, L, R) |
| <input type="checkbox"/> Dark Surface (S7) (LRR K, L) |
| <input type="checkbox"/> 5 cm Mucky Peat or Peat (S3) (LRR K, L, R) |
| <input type="checkbox"/> Iron-Manganese Masses (F12) (LRR K, L, R) |
| <input type="checkbox"/> Very Shallow Dark Surface (TF12) |
| <input type="checkbox"/> Other (explain in remarks) |

*Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic

Restrictive Layer (if observed):
 Type: _____
 Depth (inches): _____
Hydric soil present? N

Remarks:

HYDROLOGY**Wetland Hydrology Indicators:**Primary Indicators (minimum of one is required; check all that apply)

- | | |
|--|---|
| <input type="checkbox"/> Surface Water (A1) | <input type="checkbox"/> Aquatic Fauna (B13) |
| <input type="checkbox"/> High Water Table (A2) | <input type="checkbox"/> True Aquatic Plants (B14) |
| <input type="checkbox"/> Saturation (A3) | <input type="checkbox"/> Hydrogen Sulfide Odor (C1) |
| <input type="checkbox"/> Water Marks (B1) | <input type="checkbox"/> Oxidized Rhizospheres on Living Roots (C3) |
| <input type="checkbox"/> Sediment Deposits (B2) | <input type="checkbox"/> Presence of Reduced Iron (C4) |
| <input type="checkbox"/> Drift Deposits (B3) | <input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6) |
| <input type="checkbox"/> Algal Mat or Crust (B4) | <input type="checkbox"/> Thin Muck Surface (C7) |
| <input type="checkbox"/> Iron Deposits (B5) | <input type="checkbox"/> Gauge or Well Data (D9) |
| <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) | <input type="checkbox"/> Other (Explain in Remarks) |
| <input type="checkbox"/> Sparsely Vegetated Concave Surface (B8) | |
| <input type="checkbox"/> Water-Stained Leaves (B9) | |

Secondary Indicators (minimum of two required)

- | |
|--|
| <input type="checkbox"/> Surface Soil Cracks (B6) |
| <input type="checkbox"/> Drainage Patterns (B10) |
| <input type="checkbox"/> Dry-Season Water Table (C2) |
| <input type="checkbox"/> Crayfish Burrows (C8) |
| <input type="checkbox"/> Saturation Visible on Aerial Imagery (C9) |
| <input type="checkbox"/> Stunted or Stressed Plants (D1) |
| <input type="checkbox"/> Geomorphic Position (D2) |
| <input type="checkbox"/> FAC-Neutral Test (D5) |

Field Observations:

Surface water present?	Yes <input type="checkbox"/> No <input type="checkbox"/>	Depth (inches): _____
Water table present?	Yes <input type="checkbox"/> No <input type="checkbox"/>	Depth (inches): _____
Saturation present? (includes capillary fringe)	Yes <input type="checkbox"/> No <input type="checkbox"/>	Depth (inches): _____

Wetland hydrology present? N

Describe recorded data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM - Midwest Region

Project/Site South Dayton Landfill City/County: Moraine / Montgomery Sampling Date: 7/23/2013
 Applicant/Owner: CRA State: Ohio Sampling Point: 12
 Investigator(s): Scott Bush, David Blickwedel Section, Township, Range: _____
 Landform (hillslope, terrace, etc.): Terrace Local relief (concave, convex, none): Convex
 Slope (%): 0.1 Lat: 39.724256° Long: -84.221237° Datum: WGS 84
 Soil Map Unit Name Gp _____ NWI Classification: N/A

Are climatic/hydrologic conditions of the site typical for this time of the year? Y (If no, explain in remarks)

Are vegetation _____, soil _____, or hydrology _____ significantly disturbed?

Are "normal circumstances" present? Yes

Are vegetation _____, soil _____, or hydrology _____ naturally problematic?

present? Yes

SUMMARY OF FINDINGS

(If needed, explain any answers in remarks.)

Hydrophytic vegetation present? <u>N</u>	Is the sampled area within a wetland <u>N</u> If yes, optional wetland site ID: _____
Hydric soil present? <u>Y</u>	
Wetland hydrology present? <u>Y</u>	
Remarks: (Explain alternative procedures here or in a separate report.)	

VEGETATION -- Use scientific names of plants.

Tree Stratum	(Plot size: <u>30</u>)	Absolute % Cover	Dominant Species	Indicator Status	Dominance Test Worksheet Number of Dominant Species that are OBL, FACW, or FAC: <u>0</u> (A) Total Number of Dominant Species Across all Strata: <u>0</u> (B) Percent of Dominant Species that are OBL, FACW, or FAC: <u>0.00%</u> (A/B)
1					
2					
3					
4					
5					
		<u>0</u>	= Total Cover		Prevalence Index Worksheet Total % Cover of: OBL species <u>0</u> x 1 = <u>0</u> FACW species <u>0</u> x 2 = <u>0</u> FAC species <u>0</u> x 3 = <u>0</u> FACU species <u>0</u> x 4 = <u>0</u> UPL species <u>0</u> x 5 = <u>0</u> Column totals <u>0</u> (A) <u>0</u> (B) Prevalence Index = B/A = _____
Sapling/Shrub stratum	(Plot size: <u>15</u>)				
1					
2					
3					
4					
5					
		<u>0</u>	= Total Cover		
Herb stratum	(Plot size: <u>5</u>)				Hydrophytic Vegetation Indicators: <u> </u> Rapid test for hydrophytic vegetation <u> </u> Dominance test is >50% <u> </u> Prevalence index is ≤3.0* <u> </u> Morphological adaptations* (provide supporting data in Remarks or on a separate sheet) <u> </u> Problematic hydrophytic vegetation* (explain) *Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic
1					
2					
3					
4					
5					
6					
7					
8					
9					
10					
		<u>0</u>	= Total Cover		
Woody vine stratum	(Plot size: <u>30</u>)				Hydrophytic vegetation present? <u>N</u>
1					
2					
		<u>0</u>	= Total Cover		

Remarks: (Include photo numbers here or on a separate sheet)

Unvegetated openwater

SOIL

Sampling Point: 12

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (Inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type*	Loc**		
								Openwater assumed hydric

*Type: C = Concentration, D = Depletion, RM = Reduced Matrix, MS = Masked Sand Grains. **Location: PL = Pore Lining, M = Matrix

Hydric Soil Indicators:

- | | |
|--|---|
| <input type="checkbox"/> Histisol (A1) | <input type="checkbox"/> Sandy Gleyed Matrix (S4) |
| <input type="checkbox"/> Histic Epipedon (A2) | <input type="checkbox"/> Sandy Redox (S5) |
| <input type="checkbox"/> Black Histic (A3) | <input type="checkbox"/> Stripped Matrix (S6) |
| <input type="checkbox"/> Hydrogen Sulfide (A4) | <input type="checkbox"/> Loamy Mucky Mineral (F1) |
| <input type="checkbox"/> Stratified Layers (A5) | <input type="checkbox"/> Loamy Gleyed Matrix (F2) |
| <input type="checkbox"/> 2 cm Muck (A10) | <input type="checkbox"/> Depleted Matrix (F3) |
| <input type="checkbox"/> Depleted Below Dark Surface (A11) | <input type="checkbox"/> Redox Dark Surface (F6) |
| <input type="checkbox"/> Thick Dark Surface (A12) | <input type="checkbox"/> Depleted Dark Surface (F7) |
| <input type="checkbox"/> Sandy Mucky Mineral (S1) | <input type="checkbox"/> Redox Depressions (F8) |
| <input type="checkbox"/> 5 cm Mucky Peat or Peat (S3) | |

Indicators for Problematic Hydric Soils:

- | |
|---|
| <input type="checkbox"/> Coast Prairie Redox (A16) (LRR K, L, R) |
| <input type="checkbox"/> Dark Surface (S7) (LRR K, L) |
| <input type="checkbox"/> 5 cm Mucky Peat or Peat (S3) (LRR K, L, R) |
| <input type="checkbox"/> Iron-Manganese Masses (F12) (LRR K, L, R) |
| <input type="checkbox"/> Very Shallow Dark Surface (TF12) |
| <input checked="" type="checkbox"/> Other (explain in remarks) |

*Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic

Restrictive Layer (if observed):
 Type: _____
 Depth (inches): _____
Hydric soil present? Y

Remarks:

Unvegetated open water quarry pit. Assumed hydric.

HYDROLOGY**Wetland Hydrology Indicators:**Primary Indicators (minimum of one is required; check all that apply)

- | | |
|--|---|
| <input checked="" type="checkbox"/> Surface Water (A1) | <input type="checkbox"/> Aquatic Fauna (B13) |
| <input type="checkbox"/> High Water Table (A2) | <input type="checkbox"/> True Aquatic Plants (B14) |
| <input type="checkbox"/> Saturation (A3) | <input type="checkbox"/> Hydrogen Sulfide Odor (C1) |
| <input type="checkbox"/> Water Marks (B1) | <input type="checkbox"/> Oxidized Rhizospheres on Living Roots (C3) |
| <input type="checkbox"/> Sediment Deposits (B2) | <input type="checkbox"/> Presence of Reduced Iron (C4) |
| <input type="checkbox"/> Drift Deposits (B3) | <input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6) |
| <input type="checkbox"/> Algal Mat or Crust (B4) | <input type="checkbox"/> Thin Muck Surface (C7) |
| <input type="checkbox"/> Iron Deposits (B5) | <input type="checkbox"/> Gauge or Well Data (D9) |
| <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) | <input type="checkbox"/> Other (Explain in Remarks) |
| <input type="checkbox"/> Sparsely Vegetated Concave Surface (B8) | |
| <input type="checkbox"/> Water-Stained Leaves (B9) | |

Secondary Indicators (minimum of two required)

- | |
|--|
| <input type="checkbox"/> Surface Soil Cracks (B6) |
| <input type="checkbox"/> Drainage Patterns (B10) |
| <input type="checkbox"/> Dry-Season Water Table (C2) |
| <input type="checkbox"/> Crayfish Burrows (C8) |
| <input type="checkbox"/> Saturation Visible on Aerial Imagery (C9) |
| <input type="checkbox"/> Stunted or Stressed Plants (D1) |
| <input type="checkbox"/> Geomorphic Position (D2) |
| <input type="checkbox"/> FAC-Neutral Test (D5) |

Field Observations:

Surface water present?	Yes <input type="checkbox"/> No <input type="checkbox"/>	Depth (inches):	_____
Water table present?	Yes <input type="checkbox"/> No <input type="checkbox"/>	Depth (inches):	_____
Saturation present?	Yes <input type="checkbox"/> No <input type="checkbox"/>	Depth (inches):	_____

 (includes capillary fringe)

Wetland hydrology present? Y

Describe recorded data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

Quarry Pond

WETLAND DETERMINATION DATA FORM - Midwest Region

Project/Site South Dayton Landfill City/County: Moraine / Montgomery Sampling Date: 7/23/2013
 Applicant/Owner: CRA State: Ohio Sampling Point: 13
 Investigator(s): Scott Bush, David Blickwedel Section, Township, Range: _____
 Landform (hillslope, terrace, etc.): Terrace Local relief (concave, convex, none): Convex
 Slope (%): 0.1 Lat: 39.724718° Long: -84.221253° Datum: WGS 84
 Soil Map Unit Name Gp _____ NWI Classification: N/A

Are climatic/hydrologic conditions of the site typical for this time of the year? Y (If no, explain in remarks)

Are vegetation _____, soil _____, or hydrology _____ significantly disturbed?

Are "normal circumstances"

Are vegetation _____, soil _____, or hydrology _____ naturally problematic?

present? Yes

SUMMARY OF FINDINGS

(If needed, explain any answers in remarks.)

Hydrophytic vegetation present? <u>N</u>	Is the sampled area within a wetland <u>N</u> If yes, optional wetland site ID: _____
Hydric soil present? <u>N</u>	
Wetland hydrology present? <u>N</u>	
Remarks: (Explain alternative procedures here or in a separate report.)	

VEGETATION -- Use scientific names of plants.

Tree Stratum	(Plot size: <u>30</u>)	Absolute % Cover	Dominant Species	Indicator Status
1				
2				
3				
4				
5				
		<u>0</u> = Total Cover		
Sapling/Shrub stratum	(Plot size: <u>15</u>)			
1				
2				
3				
4				
5				
		<u>0</u> = Total Cover		
Herb stratum	(Plot size: <u>5</u>)			
1	<u>Aster pilosus</u>	<u>50</u>	<u>Y</u>	<u>FACU</u>
2	<u>Melilotus officinalis</u>	<u>40</u>	<u>Y</u>	<u>FACU</u>
3	<u>Dipsacus laciniatus</u>	<u>10</u>	<u>N</u>	<u>NI</u>
4				
5				
6				
7				
8				
9				
10				
		<u>100</u> = Total Cover		
Woody vine stratum	(Plot size: <u>30</u>)			
1				
2				
		<u>0</u> = Total Cover		

Dominance Test Worksheet
 Number of Dominant Species that are OBL, FACW, or FAC: 0 (A)
 Total Number of Dominant Species Across all Strata: 2 (B)
 Percent of Dominant Species that are OBL, FACW, or FAC: 0.00% (A/B)

Prevalence Index Worksheet
 Total % Cover of:
 OBL species 0 x 1 = 0
 FACW species 0 x 2 = 0
 FAC species 0 x 3 = 0
 FACU species 90 x 4 = 360
 UPL species 0 x 5 = 0
 Column totals 90 (A) 360 (B)
 Prevalence Index = B/A = 4.00

Hydrophytic Vegetation Indicators:
 _____ Rapid test for hydrophytic vegetation
 _____ Dominance test is >50%
 _____ Prevalence index is ≤3.0*
 _____ Morphological adaptations* (provide supporting data in Remarks or on a separate sheet)
 _____ Problematic hydrophytic vegetation* (explain)

*Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic

Hydrophytic vegetation present? N

Remarks: (Include photo numbers here or on a separate sheet)

SOIL

Sampling Point: 13

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (Inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type*	Loc**		
0-3	10YR 4/4	100					silt loam	
3-18	10YR4/3	95	10YR 4/6	5	C	M	silt loam and gravel	Very gravelly

*Type: C = Concentration, D = Depletion, RM = Reduced Matrix, MS = Masked Sand Grains. **Location: PL = Pore Lining, M = Matrix

Hydric Soil Indicators:

- | | |
|--|---|
| <input type="checkbox"/> Histisol (A1) | <input type="checkbox"/> Sandy Gleyed Matrix (S4) |
| <input type="checkbox"/> Histic Epipedon (A2) | <input type="checkbox"/> Sandy Redox (S5) |
| <input type="checkbox"/> Black Histic (A3) | <input type="checkbox"/> Stripped Matrix (S6) |
| <input type="checkbox"/> Hydrogen Sulfide (A4) | <input type="checkbox"/> Loamy Mucky Mineral (F1) |
| <input type="checkbox"/> Stratified Layers (A5) | <input type="checkbox"/> Loamy Gleyed Matrix (F2) |
| <input type="checkbox"/> 2 cm Muck (A10) | <input type="checkbox"/> Depleted Matrix (F3) |
| <input type="checkbox"/> Depleted Below Dark Surface (A11) | <input type="checkbox"/> Redox Dark Surface (F6) |
| <input type="checkbox"/> Thick Dark Surface (A12) | <input type="checkbox"/> Depleted Dark Surface (F7) |
| <input type="checkbox"/> Sandy Mucky Mineral (S1) | <input type="checkbox"/> Redox Depressions (F8) |
| <input type="checkbox"/> 5 cm Mucky Peat or Peat (S3) | |

Indicators for Problematic Hydric Soils:

- | |
|---|
| <input type="checkbox"/> Coast Prairie Redox (A16) (LRR K, L, R) |
| <input type="checkbox"/> Dark Surface (S7) (LRR K, L) |
| <input type="checkbox"/> 5 cm Mucky Peat or Peat (S3) (LRR K, L, R) |
| <input type="checkbox"/> Iron-Manganese Masses (F12) (LRR K, L, R) |
| <input type="checkbox"/> Very Shallow Dark Surface (TF12) |
| <input type="checkbox"/> Other (explain in remarks) |

*Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic

Restrictive Layer (if observed):
 Type: _____
 Depth (inches): _____
Hydric soil present? N

Remarks:

HYDROLOGY**Wetland Hydrology Indicators:**

Primary Indicators (minimum of one is required; check all that apply)

- | | |
|--|---|
| <input type="checkbox"/> Surface Water (A1) | <input type="checkbox"/> Aquatic Fauna (B13) |
| <input type="checkbox"/> High Water Table (A2) | <input type="checkbox"/> True Aquatic Plants (B14) |
| <input type="checkbox"/> Saturation (A3) | <input type="checkbox"/> Hydrogen Sulfide Odor (C1) |
| <input type="checkbox"/> Water Marks (B1) | <input type="checkbox"/> Oxidized Rhizospheres on Living Roots (C3) |
| <input type="checkbox"/> Sediment Deposits (B2) | <input type="checkbox"/> Presence of Reduced Iron (C4) |
| <input type="checkbox"/> Drift Deposits (B3) | <input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6) |
| <input type="checkbox"/> Algal Mat or Crust (B4) | <input type="checkbox"/> Thin Muck Surface (C7) |
| <input type="checkbox"/> Iron Deposits (B5) | <input type="checkbox"/> Gauge or Well Data (D9) |
| <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) | <input type="checkbox"/> Other (Explain in Remarks) |
| <input type="checkbox"/> Sparsely Vegetated Concave Surface (B8) | |
| <input type="checkbox"/> Water-Stained Leaves (B9) | |

Secondary Indicators (minimum of two required)

- | |
|--|
| <input type="checkbox"/> Surface Soil Cracks (B6) |
| <input type="checkbox"/> Drainage Patterns (B10) |
| <input type="checkbox"/> Dry-Season Water Table (C2) |
| <input type="checkbox"/> Crayfish Burrows (C8) |
| <input type="checkbox"/> Saturation Visible on Aerial Imagery (C9) |
| <input type="checkbox"/> Stunted or Stressed Plants (D1) |
| <input type="checkbox"/> Geomorphic Position (D2) |
| <input type="checkbox"/> FAC-Neutral Test (D5) |

Field Observations:

Surface water present?	Yes <input type="checkbox"/>	No <input type="checkbox"/>	Depth (inches): _____
Water table present?	Yes <input type="checkbox"/>	No <input type="checkbox"/>	Depth (inches): _____
Saturation present?	Yes <input type="checkbox"/>	No <input type="checkbox"/>	Depth (inches): _____

 (includes capillary fringe)

Wetland hydrology present? N

Describe recorded data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

Distinct change to upland vegetation

ATTACHMENT C

ORAM 5.0 DATA FORMS

"QUARRY POND/AREA A"

Ohio Rapid Assessment Method for Wetlands		
Version 5.0	Background Information	Ohio EPA, Division of Surface Water Final: February 1, 2001
	Score Boundary Worksheet	
	Narrative Rating	
	Quantitative Rating	
	Categorization Worksheets	
	Field Scoring Form	
Pursuant to ORC Section 3745.30, the Ohio Rapid Assessment Method for Wetlands is a guidance or policy and DOES NOT HAVE THE FORCE OF LAW		

Instructions

The investigator is *STRONGLY URGED* to read the Manual for Using the Ohio Rapid Assessment Method for Wetlands for further elaboration and discussion of the questions below prior to using the rating forms.

The Narrative Rating is designed to categorize a wetland or to provide alerts to the Rater based on the presence or possible presence of threatened or endangered species. The presence or proximity of such species is often an indicator of the quality and lack of disturbance of the wetland being evaluated. In addition, it is designed to categorize certain wetlands as very low quality (Category 1) or very high quality (Category 3) regardless of the wetland's score on the Quantitative Rating. In addition, the Narrative Rating also alerts the investigator that a particular wetland *may* be a Category 3 wetland, again, regardless of the wetland's score on the Quantitative Rating.

It is *VERY IMPORTANT* to properly and thoroughly answer each of the questions in the ORAM in order to properly categorize a wetland. To *properly* answer all the questions, the boundaries of the wetland being assessed must be correctly identified. Refer to Scoring Boundary worksheet and the User's Manual for a discussion of how to determine the "scoring boundaries." In some instances, the scoring boundaries may differ from the "jurisdictional boundaries."

Refer to the most recent ORAM Score Calibration Report for the scoring breakpoints between wetland categories. The most recent version of this document is posted on Ohio EPA's Division of Surface Water web page at the following address: <http://www.epa.ohio.gov/dsw/401/index.aspx>.

Background Information

Name: SCOTT BUSH	
Date: 7/29/2013	
Affiliation: CRA	
Address: 410 EAGLEVIEW BLVD, STE 110, EXTON, PA 19341	
Phone Number: 610-321-1800	
e-mail address: sbush@craworld.com	
Name of Wetland: QUARRY POND / AREA A	
Vegetation Community(ies): POWI / PEM	
HGM Class(es): Depressional	
Location of Wetland include map, address, north arrow, landmarks, distances, roads, etc. <div style="text-align: center; font-size: 1.2em;">SEE SITE FIGURES (FIG 1 & 2)</div>	
Lat/Long or UTM Coordinate	39.72205 N 84.22373 W
USGS Quad Name	SOUTH DAYTON
County	MONTGOMERY
Township	
Section and Subsection	
Hydrologic Unit Code	05080020105
Site Visit	✓
National Wetland Inventory Map	✓
Ohio Wetland Inventory Map	✓
Soil Survey	✓
Delineation report/map	✓
Wetland Size (acres, hectares)	16 acres

Name: QUARRY POND / AREA A	
sketch (include north arrow, relationship with other surface waters, vegetation zones, etc.) SEE SITE PLAN (ATTACHMENT A)	
Comments, Narrative Discussion, Justification of Category Changes SEE WETLAND REPORT	
Final score : 29.5	Category

Scoring Boundary Worksheet

INSTRUCTIONS. The initial step in completing the ORAM is to identify the “scoring boundaries” of the wetland being rated. In many instances this determination will be relatively easy and the scoring boundaries will coincide with the “jurisdictional boundaries.” For example, the scoring boundary of an isolated cattail marsh located in the middle of a farm field will likely be the same as that wetland’s jurisdictional boundaries. In other instances, however, the scoring boundary will not be as easily determined. Wetlands that are small or isolated from other surface waters often form large contiguous areas or heterogeneous complexes of wetland and upland. In separating wetlands for scoring purposes, the hydrologic regime of the wetland is the main criterion that should be used. Boundaries between contiguous or connected wetlands should be established where the volume, flow, or velocity of water moving through the wetland changes significantly. *Areas with a high degree of hydrologic interaction should be scored as a single wetland.* In determining a wetland’s scoring boundaries, use the guidelines in the ORAM Manual Section 5.0. In certain instances, it may be difficult to establish the scoring boundary for the wetland being rated. These problem situations include wetlands that form a patchwork on the landscape, wetlands divided by artificial boundaries like property fences, roads, or railroad embankments, wetlands that are contiguous with streams, lakes, or rivers, and estuarine or coastal wetlands. These situations are discussed below, however, it is recommended that Rater contact Ohio EPA, Division of Surface Water, 401/Wetlands Unit if there are additional questions or a need for further clarification of the appropriate scoring boundaries of a particular wetland.

#	Steps in properly establishing scoring boundaries	done?	not applicable
Step 1	Identify the wetland area of interest. This may be the site of a proposed impact, a mitigation site, conservation site, etc.	✓	
Step 2	Identify the locations where there is physical evidence that hydrology changes rapidly. Such evidence includes both natural and human-induced changes including, constrictions caused by berms or dikes, points where the water velocity changes rapidly at rapids or falls, points where significant inflows occur at the confluence of rivers, or other factors that may restrict hydrologic interaction between the wetlands or parts of a single wetland.	✓	
Step 3	Delineate the boundary of the wetland to be rated such that all areas of interest that are contiguous to and within the areas where the hydrology does not change significantly, i.e. areas that have a high degree of hydrologic interaction are included within the scoring boundary.	✓	
Step 4	Determine if artificial boundaries, such as property lines, state lines, roads, railroad embankments, etc., are present. These should not be used to establish scoring boundaries unless they coincide with areas where the hydrologic regime changes.	✓	
Step 5	In all instances, the Rater may enlarge the minimum scoring boundaries discussed here to score together wetlands that could be scored separately.		✓
Step 6	Consult ORAM Manual Section 5.0 for how to establish scoring boundaries for wetlands that form a patchwork on the landscape, divided by artificial boundaries, contiguous to streams, lakes or rivers, or for dual classifications.		✓

Narrative Rating

INSTRUCTIONS. Answer each of the following questions. Questions 1, 2, 3 and 4 should be answered based on information obtained from the site visit or the literature *and* by submitting a Data Services Request to the Ohio Department of Natural Resources, Division of Natural Areas and Preserves, Natural Heritage Data Services, 1889 Fountain Square Court, Building F-1, Columbus, Ohio 43224, 614-265-6453 (phone), 614-265-3096 (fax), <http://www.dnr.state.oh.us/dnap>. The remaining questions are designed to be answered primarily by the results of the site visit. Refer to the User's Manual for descriptions of these wetland types. Note: "Critical habitat" is a legally defined in the Endangered Species Act and is the geographic area containing physical or biological features essential to the conservation of a listed species or as an area that may require special management considerations or protection. The Rater should contact the Region 3 Headquarters or the Reynoldsburg Ecological Services Office for updates as to whether critical habitat has been designated for other federally listed threatened or endangered species. "Documented" means the wetland is listed in the appropriate State of Ohio database.

#	Question	Circle one	
1	Critical Habitat. Is the wetland in a township, section, or subsection of a United States Geological Survey 7.5 minute Quadrangle that has been designated by the U.S. Fish and Wildlife Service as "critical habitat" for any threatened or endangered plant or animal species? Note: as of January 1, 2001, of the federally listed endangered or threatened species which can be found in Ohio, the Indiana Bat has had critical habitat designated (50 CFR 17.95(a)) and the piping plover has had critical habitat proposed (65 FR 41812 July 6, 2000).	YES Wetland should be evaluated for possible Category 3 status Go to Question 2	NO Go to Question 2
2	Threatened or Endangered Species. Is the wetland known to contain an individual of, or documented occurrences of federal or state-listed threatened or endangered plant or animal species?	YES Wetland is a Category 3 wetland. Go to Question 3	NO Go to Question 3
3	Documented High Quality Wetland. Is the wetland on record in Natural Heritage Database as a high quality wetland?	YES Wetland is a Category 3 wetland Go to Question 4	NO Go to Question 4
4	Significant Breeding or Concentration Area. Does the wetland contain documented regionally significant breeding or nonbreeding waterfowl, neotropical songbird, or shorebird concentration areas?	YES Wetland is a Category 3 wetland Go to Question 5	NO Go to Question 5
5	Category 1 Wetlands. Is the wetland less than 0.5 hectares (1 acre) in size and hydrologically isolated and either 1) comprised of vegetation that is dominated (greater than eighty per cent areal cover) by <i>Phalaris arundinacea</i> , <i>Lythrum salicaria</i> , or <i>Phragmites australis</i> , or 2) an acidic pond created or excavated on mined lands that has little or no vegetation?	YES Wetland is a Category 1 wetland Go to Question 6	NO Go to Question 6
6	Bogs. Is the wetland a peat-accumulating wetland that 1) has no significant inflows or outflows, 2) supports acidophilic mosses, particularly <i>Sphagnum</i> spp., 3) the acidophilic mosses have >30% cover, 4) at least one species from Table 1 is present, and 5) the cover of invasive species (see Table 1) is <25%?	YES Wetland is a Category 3 wetland Go to Question 7	NO Go to Question 7
7	Fens. Is the wetland a carbon accumulating (peat, muck) wetland that is the saturated during most of the year, primarily by a discharge of free flowing, mineral rich, ground water with a circumneutral pH (5.5-9.0) and with one or more plant species listed in Table 1 and the cover of invasive species listed in Table 1 is <25%?	YES Wetland is a Category 3 wetland Go to Question 8a	NO Go to Question 8a

#	Question	Circle one	
8a	"Old Growth Forest." Is the wetland a forested wetland and is the forest characterized by, but not limited to, the following characteristics: overstory canopy trees of great age (exceeding at least 50% of a projected maximum attainable age for a species); little or no evidence of human-caused understory disturbance during the past 80 to 100 years; an all-aged structure and multilayered canopies; aggregations of canopy trees interspersed with canopy gaps; and significant numbers of standing dead snags and downed logs?	YES Wetland is a Category 3 wetland. Go to Question 8b	<input checked="" type="radio"/> NO Go to Question 8b
8b	Mature forested wetlands. Is the wetland a forested wetland with 50% or more of the cover of upper forest canopy consisting of deciduous trees with large diameters at breast height (dbh), generally diameters greater than 45cm (17.7in) dbh?	YES Wetland should be evaluated for possible Category 3 status. Go to Question 9a	<input checked="" type="radio"/> NO Go to Question 9a
9a	Lake Erie coastal and tributary wetlands. Is the wetland located at an elevation less than 575 feet on the USGS map, adjacent to this elevation, or along a tributary to Lake Erie that is accessible to fish?	YES Go to Question 9b	<input checked="" type="radio"/> NO Go to Question 10
9b	Does the wetland's hydrology result from measures designed to prevent erosion and the loss of aquatic plants, i.e. the wetland is partially hydrologically restricted from Lake Erie due to lakeward or landward dikes or other hydrological controls?	YES Wetland should be evaluated for possible Category 3 status Go to Question 9d	NO Go to Question 9c
9c	Are Lake Erie water levels the wetland's primary hydrological influence, i.e. the wetland is hydrologically unrestricted (no lakeward or upland border alterations), or the wetland can be characterized as an "estuarine" wetland with lake and river influenced hydrology. These include sandbar deposition wetlands, estuarine wetlands, river mouth wetlands, or those dominated by submersed aquatic vegetation.	YES Go to Question 9d	NO Go to Question 9d
9d	Does the wetland have a predominance of native species within its vegetation communities, although non-native or disturbance tolerant native species can also be present?	YES Wetland is a Category 3 wetland Go to Question 10	NO Go to Question 9e
9e	Does the wetland have a predominance of non-native or disturbance tolerant native plant species within its vegetation communities?	YES Wetland should be evaluated for possible Category 3 status Go to Question 10	NO Go to Question 10
10	Lake Plain Sand Prairies (Oak Openings) Is the wetland located in Lucas, Fulton, Henry, or Wood Counties and can the wetland be characterized by the following description: the wetland has a sandy substrate with interspersed organic matter, a water table often within several inches of the surface, and often with a dominance of the gramineous vegetation listed in Table 1 (woody species may also be present). The Ohio Department of Natural Resources Division of Natural Areas and Preserves can provide assistance in confirming this type of wetland and its quality.	YES Wetland is a Category 3 wetland. Go to Question 11	<input checked="" type="radio"/> NO Go to Question 11
11	Relict Wet Prairies. Is the wetland a relict wet prairie community dominated by some or all of the species in Table 1. Extensive prairies were formerly located in the Darby Plains (Madison and Union Counties), Sandusky Plains (Wyandot, Crawford, and Marion Counties), northwest Ohio, Erie County, and portions of western Ohio Counties (e.g. Darke, Mercer, Miami, Montgomery, etc.).	YES Wetland should be evaluated for possible Category 3 status Complete Quantitative Rating	<input checked="" type="radio"/> NO Complete Quantitative Rating

Table 1. Characteristic plant species.

invasive/exotic spp	fen species	bog species	Oak Opening species	wet prairie species
<i>Lythrum salicaria</i>	<i>Zygadenus elegans</i> var. <i>glaucus</i>	<i>Calla palustris</i>	<i>Carex cryptolepis</i>	<i>Calamagrostis canadensis</i>
<i>Myriophyllum spicatum</i>	<i>Cacalia plantaginea</i>	<i>Carex atlantica</i> var. <i>capillacea</i>	<i>Carex lasiocarpa</i>	<i>Calamagrostis stricta</i>
<i>Najas minor</i>	<i>Carex flava</i>	<i>Carex echinata</i>	<i>Carex stricta</i>	<i>Carex atherodes</i>
<i>Phalaris arundinacea</i>	<i>Carex sterilis</i>	<i>Carex oligosperma</i>	<i>Cladium mariscoides</i>	<i>Carex buxbaumii</i>
<i>Phragmites australis</i>	<i>Carex stricta</i>	<i>Carex trisperma</i>	<i>Calamagrostis stricta</i>	<i>Carex pellita</i>
<i>Potamogeton crispus</i>	<i>Deschampsia caespitosa</i>	<i>Chamaedaphne calyculata</i>	<i>Calamagrostis canadensis</i>	<i>Carex sartwellii</i>
<i>Ranunculus ficaria</i>	<i>Eleocharis rostellata</i>	<i>Decodon verticillatus</i>	<i>Quercus palustris</i>	<i>Gentiana andrewsii</i>
<i>Rhamnus frangula</i>	<i>Eriophorum viridicarvatum</i>	<i>Eriophorum virginicum</i>		<i>Hellanthus grosseserratus</i>
<i>Typha angustifolia</i>	<i>Gentianopsis</i> spp.	<i>Larix laricina</i>		<i>Liatris spicata</i>
<i>Typha x glauca</i>	<i>Lobelia kalmii</i>	<i>Nemopanthus mucronatus</i>		<i>Lysimachia quadriflora</i>
	<i>Parnassia glauca</i>	<i>Scheuchzeria palustris</i>		<i>Lythrum alatum</i>
	<i>Potentilla fruticosa</i>	<i>Sphagnum</i> spp.		<i>Pycnanthemum virginianum</i>
	<i>Rhamnus alnifolia</i>	<i>Vaccinium macrocarpon</i>		<i>Silphium terebinthinaceum</i>
	<i>Rhynchospora capillacea</i>	<i>Vaccinium corymbosum</i>		<i>Sorghastrum nutans</i>
	<i>Salix candida</i>	<i>Vaccinium oxycoccos</i>		<i>Spartina pectinata</i>
	<i>Salix myricoides</i>	<i>Woodwardia virginica</i>		<i>Solidago riddellii</i>
	<i>Salix serissima</i>	<i>Xyris difformis</i>		
	<i>Solidago ohioensis</i>			
	<i>Tofieldia glutinosa</i>			
	<i>Triglochin maritimum</i>			
	<i>Triglochin palustre</i>			

End of Narrative Rating. Begin Quantitative Rating on next page.

Quantitative Rating

Metric 1. Wetland area (max 6 pts). Estimate the area of wetland. Select the appropriate size class and assign score. Estimated areas should clearly place the wetland within the appropriate class.		score
6pts	≥50 acres (≥ 20.2ha)	
5pts	25 - <50 acres (10.1 - <20.2ha)	
4pts	10 - <25 acres (4.0 - <10.1ha)	✓
3pts	3 - <10 acres (1.2 - <4.0ha)	
2pts	0.3 - <3 acres (0.12 - <1.2ha)	
1pt	0.1 - <0.3 acres (0.04 - <0.12ha)	
0pts	< 0.1 acres (0.04ha)	

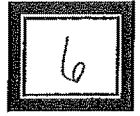
Table 2. Metric to English conversion table with visual estimation sizes.

acres	ft ²	yd ²	ft on side	yd on side	ha	m ²	m on side
50	2,177,983	241,998	1476	492	20.2	202,000	449
25	1,088,992	120,999	1044	348	10.1	101,000	318
10	435,596	48,340	660	220	4.1	41,000	203
3	130,679	14,520	362	121	1.2	12,000	110
0.3	13,067	1,452	114	38	0.12	1,200	35
0.1	4,356	484	66	22	0.04	400	20

Metric 2. Upland buffers and intensity of surrounding land uses. Maximum 14 points. Wetlands are systems transitional between upland and aquatic environments. Wetlands without "buffers", or that are located where human land use is more intensive, are often, but not always, more degraded.		score
2a. Average Buffer Width (abw). Calculate the average buffer width and select only one score. To calculate abw, estimate buffer width on each side (max of 50m) and divide by the number of sides. Example: abw of a wetland with buffers of 100m, 25m, 10m and 0m would be calculated as follows: $abw = (50m + 25m + 10m + 0m)/4 = 21.25m$. Intensive land uses are not buffers, e.g. active row cropping, recently abandoned fields, paved areas, housing developments, unfenced pasture, etc.		1
7pts	WIDE. >50m (164ft) or more around perimeter.	
4pts	MEDIUM. 25m to <50m (82 to <164ft) around the perimeter.	
1pt	NARROW. 10m to <25m (32 to <82ft) around the perimeter.	✓
0pts	VERY NARROW. <10m (<32ft) around perimeter.	
2b. Intensity of predominant surrounding land use(s). Select one, or double check up to two and average score, for the intensity of the predominant land use(s) outside the wetland's buffer zone (if any).		1
7pts	VERY LOW. 2 nd growth or older forest, prairie, savannah, wildlife area, etc.	
5pts	LOW. Old field (>10 yrs), shrubland, young 2 nd growth forest, etc.	
3pts	MODERATELY HIGH. Residential, fenced pasture, park, conservation tillage, new fallow field, etc.	
1pt	HIGH. urban, industrial, open pasture, row cropping, mining, construction, etc.	✓



subtotal



subtotal from previous page

Metric 3. Hydrology. Maximum 30 points. This metric evaluates the wetland's water budget, hydroperiod, the hydrologic connectivity of the wetland to other surface waters, and the degree to which the wetland's hydrology has been altered by human activity. A wetland can receive no more than 30 points for Metric 3 even though it is possible, to score more than 30 points.		
3a. Sources of Water. Select all that apply and sum score. This question relates to a wetland's water budget. It also is reflective that wetlands with certain types of water sources, or multiple water sources, e.g. high pH groundwater or perennial surface water connections, can be very high quality wetlands or can have high functions and values.		9
5pts	High pH groundwater (7.5-9.0)	
3pts	Other groundwater	✓
1pts	Precipitation	✓
3pts	Seasonal surface water	
5pts	Perennial surface water (lake or stream)	✓
3b. Connectivity. Select all that apply and sum score.		1
1pt	100 year floodplain. "Floodplain" is defined in OAC Rule 3745-1-50(P) as "...the relatively level land next to a stream or river channel that is periodically submerged by flood waters. It is composed of alluvium deposited by the present stream or river when it floods." Where they are available, flood insurance rate maps (FIRMs) and flood boundary and floodway maps may be used.	✓
1pt	between stream/lake and other human land use. This question asks whether the wetland is located <u>between</u> a surface water and a different adjacent land use, such that run-off from the adjacent land use could flow through wetland before it discharges into the surface water. "Different adjacent land uses" include agricultural, commercial, industrial, mining, or residential uses.	
1pt	part of wetland or upland (e.g. forest, prairie) complex. Both this and the next question ask whether the wetland is in physical proximity to, or a part of other nearby wetland or upland natural areas. The difference is whether the area the wetland is "long and narrow" like a river, or more "squarish" like a large forest or woodlot. If the latter is the case, this question applies; if the former, the next question applies. In a few instances, both may apply	
1pt	part of riparian or upland corridor. See description above.	
3c. Maximum water depth. Select only one and assign score. The Rater <i>does not</i> need to actually observe the wetland when its water depth is greatest in order to award the maximum points for this question. The use of secondary indicators, as outlined in the 1987 Manual will be useful in answering this question.		3
3pts	>0.7m (27.6in)	✓
2pts	0.4 to 0.7m (15.7 to 27.6in)	
1pt	<0.4m (<15.7in)	
3d. Duration of inundation/saturation. Select one or double check and average the scores if duration is uncertain. The use of secondary indicators is necessary and expected in order to properly answer this Question. Categories correspond to Zones II, III, and IV of 1987 Manual (Table 5). Zone IV subdivided into seasonally inundated and seasonally saturated.		2.5
4pts	Semipermanently to permanently inundated or saturated.	✓
3pts	Regularly inundated or saturated.	
2pts	Seasonally inundated.	
1pt	Seasonally saturated in the upper 30cm (12in) of soil.	✓

Wetlands are PERM Seasonally Saturated
Quarry Pit is permanent

 $\bar{X} = 2.5$ 

subtotal

21.5

subtotal from previous page

3e. Modifications to natural hydrologic regime. Check all observable modifications from list below. Score by selecting the most appropriate description of the wetland. Scores may be double checked and averaged. This question asks the Rater to evaluate the "intactness" of, or lack of disturbance to, the natural hydrologic regime of the type of wetland that is being evaluated.

It is very important to stress that this question does not discriminate between wetlands with different types of hydrologic regimes, e.g. between a forested seep wetland located on a floodplain with seasonal inundation and a leatherleaf (*Chamaedaphne calyculata*) bog with precipitation and minor amounts of surface run-off from a small watershed. Rather, it asks the rater to evaluate the "intactness" of the hydrologic regime attributable to *that type of wetland*. In the example above, both the forested seep wetland and the leatherleaf bog can score the maximum points (12) if there no, or no apparent, modifications to the natural hydrologic regime.

Once the Rater has listed all possible past and ongoing disturbances, the Rater should check the most appropriate category to describe the present state of the wetland. In instances where the Rater believes that a wetland falls between two categories, or where the Rater is uncertain as to which category is appropriate, it is appropriate to "double check" and average the score.

The labels on the scoring categories are intended to be descriptive but not controlling. In some instances, it may be more appropriate to consider the scoring categories as fixed locations on a hydrologic disturbance continuum, from very high to very low or no disturbance.

The Rater may check one or several of these possible disturbances, yet still determine that the natural hydrologic regime is intact. However, see Metric 4 where these same disturbances may be habitat alterations.

3

Check all that are observed present in or near the wetland.

<input type="checkbox"/>	ditch(es), in or near the wetland	<input type="checkbox"/>	point source discharges to the (non-stormwater)
<input type="checkbox"/>	tile(s), in or near the wetland	<input checked="" type="checkbox"/>	filling/grading activities in or near the wetland
<input checked="" type="checkbox"/>	dike(s), in or near the wetland	<input checked="" type="checkbox"/>	road beds/RR beds in or near the wetland
<input type="checkbox"/>	weir(s), in or near the wetland	<input type="checkbox"/>	dredging activities in or near the wetland
<input checked="" type="checkbox"/>	stormwater inputs (addition of water)	<input type="checkbox"/>	other (specify)

Circle one answer. Have any of the disturbances identified above caused or appear to have caused more than trivial alterations to the wetland's natural hydrologic regime, or have they occurred so far in the past that current hydrology should be considered to be "natural."?	YES Assign a score 1, 3 or 7, or an intermediate score, depending on degree of recovery from the disturbance.	NO Assign a score of 12 since there are no or no apparent modifications.	NOT SURE Double check "none or none apparent" and "recovered" and assign a score of 9.5.
	Select one or double check adjoining numbers and average the score.		
12pts	NONE OR NONE APPARENT. There are no modifications or no modifications that are apparent to the rater.		
7pts	RECOVERED. The wetland appears to have recovered from past modifications.		
3pts	RECOVERING. The wetland appears to be in the process of recovering from past modifications.		<input checked="" type="checkbox"/>
1pt	RECENT OR NO RECOVERY. The modifications have occurred recently occurred, and/or the wetland has not recovered from past modifications, and/or the modifications are ongoing.		

24.5

subtotal

24.5

subtotal from previous page

Metric 4. Habitat Alteration and Development. Maximum 20 points. While hydrology may be the single most important determinant for the establishment and maintenance of specific types of wetlands and wetland processes, there is a range of other factors and activities which affect wetland quality and cause disturbances to wetlands that are unrelated to hydrology. This metric attempts to evaluate these things under the rubric "habitat alteration." In many instances, items checked as possible hydrologic disturbances in Question 3e will be instead alterations to a wetland's habitat or disruptions in its development (successional state). In other instances, a disturbance may be appropriately considered under both Metric 3 and Metric 4. In any case, the Rater should carefully consider what is the actual proximate (direct) cause of the disturbance to the wetland.

4a. Substrate/Soil Disturbance. Select one or double check and average. This question evaluates physical disturbances to the soil and surface substrates of the wetland. Note also that the labels on the scoring categories are intended to be descriptive but not controlling. In some instances, it may be more appropriate to consider the scoring categories as fixed locations on a disturbance continuum, from very high to very low or no disturbance.

Examples of substrate/soil disturbance include filling and grading, plowing, grazing (hooves), vehicle use (motorbikes, off-road vehicles, construction vehicles), sedimentation, dredging, and other mechanical disturbances to the surface substrates or soils.

Circle one answer. Have any of soil or substrate disturbances caused or appear to have caused more than trivial alterations to the wetland's natural soils or substrates, or have they occurred so far in the past that current conditions should be considered to be "natural"?

YES

Assign a score 1, 2 or 3, or an intermediate score, depending on degree of recovery from the disturbance.

NO

Assign a score of 4 since there are no or no apparent modifications.

NOT SURE

Double check "none or none apparent" and "recovered" and assign a score of 3.5.

Select one or double check adjoining numbers and average the score.

score

4pts	NONE OR NONE APPARENT. There are no disturbances, or no disturbances apparent to the Rater.	
3pts	RECOVERED. The wetland appears to have recovered from past disturbances.	
2pts	RECOVERING. The wetland appears to be in the process of recovering from past disturbances.	
1pt	RECENT OR NO RECOVERY. The disturbances have occurred recently, and/or the wetland has not recovered from past disturbances, and/or the disturbances are ongoing.	✓

4b. Habitat development. Select only one and assign score. This question asks the Rater to assign an overall qualitative rating of how well-developed the wetland is in comparison to other ecologically or hydrogeomorphically similar wetlands. This question presumes a good sense of the types of wetlands and the range in quality typical of the region, watershed, or state.

7pts	EXCELLENT. Wetland appears to represent the best of its type or class.	
6pts	VERY GOOD. Wetland appears to be a very good example of its type or class but is lacking in characteristics which would make it excellent.	
5pts	GOOD. Wetland appears to be a good example of its type or class but because of past or present disturbances, successional state, or other reasons, is not excellent.	
4pts	MODERATELY GOOD. Wetland appears to be a fair to good example of its type or class.	
3pts	FAIR. Wetland appears to be a moderately good example of its type or class but because of past or present disturbances, successional state, etc. is not good.	
2pts	POOR TO FAIR. Wetland appears to be a poor to fair example of its type or class.	
1pt	POOR. Wetland appears to <u>not</u> be a good example of its type or class because of past or present disturbances, successional state, etc.	✓

26.5

subtotal

26.5

subtotal from previous page

4c. Habitat alteration. This question evaluates the "intactness" the natural habitat of the type of wetland that is being evaluated. This question does not discriminate between wetlands with different types of habitat. Check all possible alterations that are observed. All available information, field visits, aerial photos, maps, etc. can be used to identify a possible alterations. Evaluate whether the alteration is trivial in relation to the wetlands overall habitat. Select the most appropriate score that best describes the present state of the wetland. It is appropriate to "double check" and average scores. In some instances, the scores can be viewed as a habitat alteration continuum, from very high to very low or no disturbance. The Rater may check one or several of these possible disturbances, yet still determine that the natural habitat is intact.

1

Check all that are observed present in or near the wetland.

<input type="checkbox"/>	Mowing	<input type="checkbox"/>	Herbaceous layer/aquatic bed removal
<input type="checkbox"/>	Grazing (cattle, sheep, pigs, etc.)	<input type="checkbox"/>	Sedimentation
<input type="checkbox"/>	Clearcutting	<input type="checkbox"/>	Dredging
<input type="checkbox"/>	Selective cutting	<input type="checkbox"/>	Farming
<input type="checkbox"/>	Woody debris removal	<input type="checkbox"/>	Nutrient enrichment, e.g. nuisance algae
<input checked="" type="checkbox"/>	Toxic pollutants	<input checked="" type="checkbox"/>	Other (specify) MINING
<input checked="" type="checkbox"/>	Shrub/sapling removal	<input type="checkbox"/>	Other (specify)

Circle one answer. Have any of the disturbances identified above caused or appeared to cause more than trivial alterations to the wetland's natural habitat, or have occurred so far in the past that current habitat should be considered to be "natural."?

YES

Assign a score 1, 3 or 6, or an intermediate score, depending on degree of recovery from the disturbance.

NO

Assign a score of 9 since there are no or no apparent modifications.

NOT SURE

Double check "none or none apparent" and "recovered" and assign a score of 7.5.

Select one score or double check adjoining numbers and average the score.

9pts	NONE OR NONE APPARENT. There are no alterations, or no alterations that are apparent to the Rater.	
6pts	RECOVERED. The wetland appears to have recovered from past alterations.	
3pts	RECOVERING. The wetland appears to be in the process of recovering from past alterations.	
1pt	RECENT OR NO RECOVERY. The alterations have occurred recently, and/or the wetland has not recovered from past alterations, and/or the alterations are ongoing.	<input checked="" type="checkbox"/>

Metric 5. Special wetland communities. Maximum 10 points. Assign or deduct points if wetland has the feature described. Refer to Narrative Rating for guidance. No wetland can receive more than 10 points even if multiple categories are applicable.

score

0

<input type="checkbox"/>	Bog (10 pts)	<input type="checkbox"/>	Lake plains sand prairies (Oak Openings) (10 pts)
<input type="checkbox"/>	Fen (10 pts)	<input type="checkbox"/>	Relict wet prairies (10 pts)
<input type="checkbox"/>	Old Growth Forest (10 pts)	<input type="checkbox"/>	Known occurrence of threatened/endangered species (10 pts)
<input type="checkbox"/>	Mature Forested Wetland (5 pts)	<input type="checkbox"/>	Significant migratory songbird/waterfowl habitat (10 pts)
<input type="checkbox"/>	Coastal wetlands, unrestricted hydrology (10 pts)	<input type="checkbox"/>	Category 1 wetlands (See Narrative Rating #5) (-10 pts)
<input type="checkbox"/>	Coastal wetlands, restricted hydrology (5 pts)	<input type="checkbox"/>	

27.5

subtotal

27.5

subtotal from previous page

Metric 6. Vegetation, Interspersion, and Microtopography. Maximum 20 points.		
6a. Wetland Vegetation Communities. Check each community present both vertically and horizontally within the wetland with an area of at least 0.1hectares or 1000m ² (0.2471 acres). Assign a score of 0 to 3 using Tables 3, Table 4 or Table 5. Sum the scores for the classes present.		
	Aquatic Bed. Includes areas of wetlands dominated by plants that grow principally on or below the surface of the water for most of the growing season in most years. Floating aquatic species like duckweed (<i>Lemna</i> spp., <i>Spirodela</i> spp.) are excluded from definition of "aquatic bed." Aquatic beds often occur as a distinct zone as an "understory" below shrubs or trees.	0
✓	Emergent. Includes areas of wetlands dominated by erect, rooted, herbaceous hydrophytes, excluding mosses and lichens. This vegetation is present for most of the growing season in most years. Common names for emergent communities include marsh, wet meadow, wet prairie, sedge meadow, fens, prairie pothole, and bluejoint slough.	1
	Shrub. Includes areas of wetlands dominated by woody vegetation less than 6m (20 ft) tall. The plant species include true shrubs, young trees, or trees or shrubs that are small or stunted because of environmental conditions. Shrub wetlands may represent a successional stage leading to a forested wetland or they may be relatively stable plant communities.	0
	Forested. Includes wetlands or areas of wetlands characterized by woody vegetation greater than 6m (20ft) or taller. Forested wetlands have an overstory of trees and often contain an understory of young trees and shrubs and an herbaceous layer, although the young tree/shrub and herbaceous layers can be largely missing from some types of forested wetlands. Some forested wetlands are defined as "vernal pools" in OAC Rule 3745-1-50.	0
	Mudflats. The "mudflat" class is equivalent to the "unconsolidated bottom/mud" class/subclass (PUB ₃) described in Cowardin et al. (1979) and includes areas of wetlands characterized by exposed or shallowly inundated substrates with vegetative cover less than 30%.	0
✓	Open water. The "open water" class is equivalent to the "open water - unknown bottom" class in Cowardin et al. (1979) and includes areas re 1) inundated, 2) unvegetated, and 3) and "open", i.e. there is no "canopy" of any type of vegetation.	1
	Other (See User's Manual)	

Table 3. Use this table to assign a cover score for Metric 6a to each of the vegetation communities identified on the preceding page. Refer to Table 6 for narrative descriptions of what "low," "moderate," and "high" quality mean.

Cover scale	Description
0	the vegetation community is either, 1) absent from wetland, or 2) comprises less than 0.1ha (0.2471 acres) of contiguous area within the wetland
1	vegetation community is present and either, 1) comprises a small part of the wetland's vegetation and is of low or moderate quality, or 2) if it comprises a significant part of the wetland's vegetation, the community is of low quality
2	the vegetation community is present and either, 1) comprises a significant part of the wetland's vegetation and is of moderate quality, or 2) the vegetation community comprises a small part of the wetland's vegetation but is of high quality
3	the vegetation community is of high quality and comprises a significant part, or more, of the wetland's vegetation.

Table 4. Use this table in conjunction with Table 5 to determine what is a "low," "moderate," or "high" quality community.

narrative	description
low	low species diversity and/or a predominance of non-native or disturbance tolerant native species
moderate	native species are the dominant component of the vegetation, although non-native or disturbance tolerant native species can also be present, and species diversity is moderate to moderately high, but generally without the presence of rare, threatened, or endangered species
high	a predominance of native species, with non-native species absent or virtually absent, and high species diversity and sometimes, but not always, the presence of rare, threatened or endangered species.

Table 5. Mudflat and open water community cover scale.

0	Absent <0.1ha (0.247 acres)
1	Low 0.1 to <1ha (0.247 to 2.47 acres)
2	Moderate 1ha to <4ha (2.47 to 9.88 acres)
3	High 4ha (9.88 acres) or more

29.5

subtotal



subtotal from previous page

6b. Horizontal (plan view) interspersions. Select only one and assign score. Evaluate the wetland from a "plan view," i.e. as if the looking down upon it. See Figure 1.		1
5pts	HIGH. Wetland has a high degree of interspersions.	
4pts	MODERATELY HIGH. Wetland has a moderately high degree of interspersions.	
3pts	MODERATE. Wetland has a moderate degree of interspersions.	
2pts	MODERATELY LOW. Wetland has a moderately low degree of interspersions.	
1pt	LOW. Wetland has a low degree of interspersions.	✓
0pts	NONE. Wetland has no plan view interspersions.	

6c. Coverage of Invasive Plant Species. Refer to Table 1 on Page 7 for list. Select only one and assign score.		-3
-5pts	Extensive. >75% areal cover of invasive species	
-3pts	Moderate 25-75% areal cover of invasive species	✓
-1pt	Sparse. 5-25% areal cover of invasive species	
0pts	Nearly absent. <5% areal cover of invasive species	
1pt	Absent.	

6d. Microtopography. Check each feature present in the wetland. Assign cover score of 0 to 3 using Table 6. Evaluate various microtopographic habitat features often present in wetlands.		0
Vegetated hummocks and tussocks.		
Coarse woody debris >15cm (6in) in diameter		
Standing dead trees >25cm (10in) diameter at breast height		
Amphibian breeding habitat, e.g. vernal pools with standing water of sufficient duration and depth to support reproduction, or habitat for frog reproduction.		

Table 6. Cover scale for microtopographic habitat features.

microtopographic habitat quality	narrative description
0	feature is absent or functionally absent from the wetland
1	feature is present in the wetland in very small amounts or if more common, of low quality
2	feature is present in moderate amounts, but not of highest quality, or in small amounts of highest quality
3	present in moderate or greater amounts and of highest quality

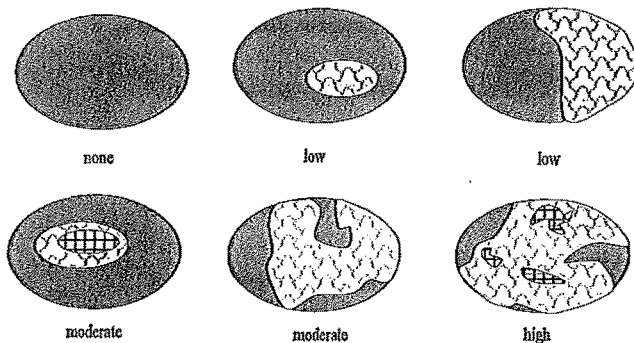


Figure 1. Hypothetical wetlands for estimating degree of interspersions.



GRAND TOTAL

End of Quantitative Rating. Complete Categorization Worksheets.

Refer to the most recent ORAM Score Calibration Report for the scoring breakpoints between wetland categories at the following address: <http://www.epa.ohio.gov/dsw/401/index.aspx>.

ORAM Summary Worksheet

		circle answer or insert score	Result
Narrative Rating	Question 1. Critical Habitat	YES <u>NO</u>	If yes, Category 3.
	Question 2. Threatened or Endangered Species	YES <u>NO</u>	If yes, Category 3.
	Question 3. High Quality Natural Wetland	YES <u>NO</u>	If yes, Category 3.
	Question 4. Significant bird habitat	YES <u>NO</u>	If yes, Category 3.
	Question 5. Category 1 Wetlands	YES <u>NO</u>	If yes, Category 1.
	Question 6. Bogs	YES <u>NO</u>	If yes, Category 3.
	Question 7. Fens	YES <u>NO</u>	If yes, Category 3.
	Question 8a. Old Growth Forest	YES <u>NO</u>	If yes, Category 3.
	Question 8b. Mature Forested Wetland	YES NO	If yes, evaluate for Category 3; may also be 1 or 2.
	Question 9b. Lake Erie Wetlands - Restricted	YES <u>NO</u>	If yes, evaluate for Category 3; may also be 1 or 2.
	Question 9d. Lake Erie Wetlands - Unrestricted.	YES NO	If yes, Category 3
	Question 9e. Lake Erie Wetlands - Unrestricted with invasive plants	YES NO	If yes, evaluate for Category 3; may also be 1 or 2.
Question 10. Oak Openings	YES <u>NO</u>	If yes, Category 3	
Question 11. Relict Wet Prairies	YES <u>NO</u>	If yes, evaluate for Category 3; may also be 1 or 2.	
Quantitative Rating	Metric 1. Size		4
	Metric 2. Buffers and surrounding land use		2
	Metric 3. Hydrology		18.5
	Metric 4. Habitat		2
	Metric 5. Special Wetland Communities		0
	Metric 6. Plant communities, Interspersion, microtopography		0
	TOTAL SCORE Consult most recent score calibration report at http://www.epa.ohio.gov/dsw/401/index.aspx to determine the wetland's category based on its quantitative score		

Complete Wetland Categorization Worksheet

Wetland Categorization Worksheet

Choices	Circle one		Evaluation of Categorization Result of ORAM
Did you answer "Yes" to any of the following questions: Narrative Rating Nos. 2, 3, 4, 6, 7, 8a, 9d, 10.	YES Wetland is categorized as a Category 3 wetland	<input checked="" type="radio"/> NO	Is quantitative rating score <i>less</i> than the Category 2 scoring threshold (<i>excluding</i> gray zone)? If yes, reevaluate the category of the wetland using the narrative criteria in OAC Rule 3745-1-54(C) and biological and/or functional assessments to determine if the wetland has been over-categorized by the ORAM
Did you answer "Yes" to any of the following questions: Narrative Rating Nos. 1, 8b, 9b, 9e, 11	YES Wetland should be evaluated for possible Category 3 status	<input checked="" type="radio"/> NO	Evaluate the wetland using the 1) narrative criteria in OAC Rule 3745-1-54(C) and 2) the quantitative rating score. If the wetland is determined to be a Category 3 wetland using either of these, it should be categorized as a Category 3 wetland. Detailed biological and/or functional assessments may also be used to determine the wetland's category.
Did you answer "Yes" to Narrative Rating No. 5	YES Wetland is categorized as a Category 1 wetland	<input checked="" type="radio"/> NO	Is quantitative rating score <i>greater</i> than the Category 2 scoring threshold (<i>including</i> any gray zone)? If yes, reevaluate the category of the wetland using the narrative criteria in OAC Rule 3745-1-54(C) and biological and/or functional assessments to determine if the wetland has been under-categorized by the ORAM
Does the quantitative score fall within the scoring range of a Category 1, 2, or 3 wetland?	<input checked="" type="radio"/> YES Wetland is assigned to the appropriate category based on the scoring range	<input type="radio"/> NO	If the score of the wetland is located within the scoring range for a particular category, the wetland should be assigned to that category. In all instances however, the narrative criteria described in OAC Rule 3745-1-54(C) can be used to clarify or change a categorization based on an quantitative score.
Does the quantitative score fall with the "gray zone" for Category 1 or 2 or Category 2 or 3 wetlands?	YES Wetland is assigned to the higher of the two categories or assigned to a category based on detailed assessments and the narrative criteria	<input checked="" type="radio"/> NO	Rater has the option of assigning the wetland to the higher of the two categories or to assign a category based on the results of a nonrapid wetland assessment method, e.g. functional assessment, biological assessment, etc. and a consideration of the narrative criteria in OAC rule 3745-1-54(C).
Does the wetland otherwise exhibit <i>moderate OR superior</i> hydrologic OR habitat, OR recreational functions AND the wetland was <i>not</i> categorized as a Category 2 wetland (in the case of moderate functions) or a Category 3 wetland (in the case of superior functions) by this method?	YES Wetland was undercategorized by this method. A written justification for recategorization should be provided on Background Information Form	<input checked="" type="radio"/> NO Wetland is assigned to category as determined by the ORAM.	A wetland may be undercategorized using this method, but still exhibit one or more superior functions, e.g. a wetland's biotic communities may be degraded by human activities, but the wetland may still exhibit superior hydrologic functions because of its type, landscape position, size, local or regional significance, etc. In this circumstance, the narrative criteria in OAC Rule 3745-1-54(C)(2) and (3) are controlling, and the under-categorization should be corrected. A written justification with supporting reasons or information for this determination should be provided.

Final Category

Choose one	<input checked="" type="radio"/> Category 1	<input type="radio"/> Category 2	<input type="radio"/> Category 3
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End of Ohio Rapid Assessment Method for Wetlands.

"SMALL POND / AREA B"

Version 5.0	Ohio Rapid Assessment Method for Wetlands	
	Background Information Score Boundary Worksheet Narrative Rating Quantitative Rating Categorization Worksheets Field Scoring Form	Ohio EPA, Division of Surface Water Final: February 1, 2001
Pursuant to ORC Section 3745.30, the Ohio Rapid Assessment Method for Wetlands is a guidance or policy and DOES NOT HAVE THE FORCE OF LAW		

Instructions

The investigator is *STRONGLY URGED* to read the Manual for Using the Ohio Rapid Assessment Method for Wetlands for further elaboration and discussion of the questions below prior to using the rating forms.

The Narrative Rating is designed to categorize a wetland or to provide alerts to the Rater based on the presence or possible presence of threatened or endangered species. The presence or proximity of such species is often an indicator of the quality and lack of disturbance of the wetland being evaluated. In addition, it is designed to categorize certain wetlands as very low quality (Category 1) or very high quality (Category 3) regardless of the wetland's score on the Quantitative Rating. In addition, the Narrative Rating also alerts the investigator that a particular wetland *may* be a Category 3 wetland, again, regardless of the wetland's score on the Quantitative Rating.

It is *VERY IMPORTANT* to properly and thoroughly answer each of the questions in the ORAM in order to properly categorize a wetland. To *properly* answer all the questions, the boundaries of the wetland being assessed must be correctly identified. Refer to Scoring Boundary worksheet and the User's Manual for a discussion of how to determine the "scoring boundaries." In some instances, the scoring boundaries may differ from the "jurisdictional boundaries."

Refer to the most recent ORAM Score Calibration Report for the scoring breakpoints between wetland categories. The most recent version of this document is posted on Ohio EPA's Division of Surface Water web page at the following address: <http://www.epa.ohio.gov/dsw/401/index.aspx>.

Background Information

Name: SCOTT BUSH	
Date: 7/29/2013	
Affiliation: CRA	
Address: 410 EAGLEVIEW BLVD, STE 110, EXTON, PA 19341	
Phone Number: 610-321-1800	
e-mail address: sbush@craworld.com	
Name of Wetland: SMALL POND / AREA B	
Vegetation Community(ies): PEM / PSS	
HGM Class(es): Depressional	
Location of Wetland include map, address, north arrow, landmarks, distances, roads, etc. SEE SITE FIGURES (1 & 2)	
Lat/Long or UTM Coordinate	39.72570 N 84.22083 W
USGS Quad Name	SOUTH DAYTON
County	MONTGOMERY
Township	
Section and Subsection	
Hydrologic Unit Code	05080020105
Site Visit	✓
National Wetland Inventory Map	✓
Ohio Wetland Inventory Map	✓
Soil Survey	✓
Delineation report/map	✓
Wetland Size (acres, hectares)	0.08 acre

Name: <u>SMALL POND/AREA B</u>	
sketch (include north arrow, relationship with other surface waters, vegetation zones, etc.) <u>SEE SITE PLAN (ATTACHMENT A)</u>	
Comments, Narrative Discussion, Justification of Category Changes <u>SEE WETLAND REPORT</u>	
Final score : <u>7</u>	Category <u>1</u>

Scoring Boundary Worksheet

INSTRUCTIONS. The initial step in completing the ORAM is to identify the “scoring boundaries” of the wetland being rated. In many instances this determination will be relatively easy and the scoring boundaries will coincide with the “jurisdictional boundaries.” For example, the scoring boundary of an isolated cattail marsh located in the middle of a farm field will likely be the same as that wetland’s jurisdictional boundaries. In other instances, however, the scoring boundary will not be as easily determined. Wetlands that are small or isolated from other surface waters often form large contiguous areas or heterogeneous complexes of wetland and upland. In separating wetlands for scoring purposes, the hydrologic regime of the wetland is the main criterion that should be used. Boundaries between contiguous or connected wetlands should be established where the volume, flow, or velocity of water moving through the wetland changes significantly. *Areas with a high degree of hydrologic interaction should be scored as a single wetland.* In determining a wetland’s scoring boundaries, use the guidelines in the ORAM Manual Section 5.0. In certain instances, it may be difficult to establish the scoring boundary for the wetland being rated. These problem situations include wetlands that form a patchwork on the landscape, wetlands divided by artificial boundaries like property fences, roads, or railroad embankments, wetlands that are contiguous with streams, lakes, or rivers, and estuarine or coastal wetlands. These situations are discussed below, however, it is recommended that Rater contact Ohio EPA, Division of Surface Water, 401/Wetlands Unit if there are additional questions or a need for further clarification of the appropriate scoring boundaries of a particular wetland.

#	Steps in properly establishing scoring boundaries	done?	not applicable
Step 1	Identify the wetland area of interest. This may be the site of a proposed impact, a mitigation site, conservation site, etc.	✓	
Step 2	Identify the locations where there is physical evidence that hydrology changes rapidly. Such evidence includes both natural and human-induced changes including, constrictions caused by berms or dikes, points where the water velocity changes rapidly at rapids or falls, points where significant inflows occur at the confluence of rivers, or other factors that may restrict hydrologic interaction between the wetlands or parts of a single wetland.	✓	
Step 3	Delineate the boundary of the wetland to be rated such that all areas of interest that are contiguous to and within the areas where the hydrology does not change significantly, i.e. areas that have a high degree of hydrologic interaction are included within the scoring boundary.	✓	
Step 4	Determine if artificial boundaries, such as property lines, state lines, roads, railroad embankments, etc., are present. These should not be used to establish scoring boundaries unless they coincide with areas where the hydrologic regime changes.	✓	
Step 5	In all instances, the Rater may enlarge the minimum scoring boundaries discussed here to score together wetlands that could be scored separately.		✓
Step 6	Consult ORAM Manual Section 5.0 for how to establish scoring boundaries for wetlands that form a patchwork on the landscape, divided by artificial boundaries, contiguous to streams, lakes or rivers, or for dual classifications.		✓

Narrative Rating

INSTRUCTIONS. Answer each of the following questions. Questions 1, 2, 3 and 4 should be answered based on information obtained from the site visit or the literature *and* by submitting a Data Services Request to the Ohio Department of Natural Resources, Division of Natural Areas and Preserves, Natural Heritage Data Services, 1889 Fountain Square Court, Building F-1, Columbus, Ohio 43224, 614-265-6453 (phone), 614-265-3096 (fax), <http://www.dnr.state.oh.us/dnap>. The remaining questions are designed to be answered primarily by the results of the site visit. Refer to the User's Manual for descriptions of these wetland types. Note: "Critical habitat" is a legally defined in the Endangered Species Act and is the geographic area containing physical or biological features essential to the conservation of a listed species or as an area that may require special management considerations or protection. The Rater should contact the Region 3 Headquarters or the Reynoldsburg Ecological Services Office for updates as to whether critical habitat has been designated for other federally listed threatened or endangered species. "Documented" means the wetland is listed in the appropriate State of Ohio database.

#	Question	Circle one	
1	Critical Habitat. Is the wetland in a township, section, or subsection of a United States Geological Survey 7.5 minute Quadrangle that has been designated by the U.S. Fish and Wildlife Service as "critical habitat" for any threatened or endangered plant or animal species? Note: as of January 1, 2001, of the federally listed endangered or threatened species which can be found in Ohio, the Indiana Bat has had critical habitat designated (50 CFR 17.95(a)) and the piping plover has had critical habitat proposed (65 FR 41812 July 6, 2000).	YES Wetland should be evaluated for possible Category 3 status Go to Question 2	<input checked="" type="radio"/> NO Go to Question 2
2	Threatened or Endangered Species. Is the wetland known to contain an individual of, or documented occurrences of federal or state-listed threatened or endangered plant or animal species?	YES Wetland is a Category 3 wetland. Go to Question 3	<input checked="" type="radio"/> NO Go to Question 3
3	Documented High Quality Wetland. Is the wetland on record in Natural Heritage Database as a high quality wetland?	YES Wetland is a Category 3 wetland Go to Question 4	<input checked="" type="radio"/> NO Go to Question 4
4	Significant Breeding or Concentration Area. Does the wetland contain documented regionally significant breeding or nonbreeding waterfowl, neotropical songbird, or shorebird concentration areas?	YES Wetland is a Category 3 wetland Go to Question 5	<input checked="" type="radio"/> NO Go to Question 5
5	Category 1 Wetlands. Is the wetland less than 0.5 hectares (1 acre) in size and hydrologically isolated and either 1) comprised of vegetation that is dominated (greater than eighty per cent areal cover) by <i>Phalaris arundinacea</i> , <i>Lythrum salicaria</i> , or <i>Phragmites australis</i> , or 2) an acidic pond created or excavated on mined lands that has little or no vegetation?	YES Wetland is a Category 1 wetland Go to Question 6	<input checked="" type="radio"/> NO Go to Question 6
6	Bogs. Is the wetland a peat-accumulating wetland that 1) has no significant inflows or outflows, 2) supports acidophilic mosses, particularly <i>Sphagnum</i> spp., 3) the acidophilic mosses have >30% cover, 4) at least one species from Table 1 is present, and 5) the cover of invasive species (see Table 1) is <25%?	YES Wetland is a Category 3 wetland Go to Question 7	<input checked="" type="radio"/> NO Go to Question 7
7	Fens. Is the wetland a carbon accumulating (peat, muck) wetland that is the saturated during most of the year, primarily by a discharge of free flowing, mineral rich, ground water with a circumneutral pH (5.5-9.0) and with one or more plant species listed in Table 1 and the cover of invasive species listed in Table 1 is <25%?	YES Wetland is a Category 3 wetland Go to Question 8a	<input checked="" type="radio"/> NO Go to Question 8a

#	Question	Circle one	
8a	"Old Growth Forest." Is the wetland a forested wetland and is the forest characterized by, but not limited to, the following characteristics: overstory canopy trees of great age (exceeding at least 50% of a projected maximum attainable age for a species); little or no evidence of human-caused understory disturbance during the past 80 to 100 years; an all-aged structure and multilayered canopies; aggregations of canopy trees interspersed with canopy gaps; and significant numbers of standing dead snags and downed logs?	YES Wetland is a Category 3 wetland. Go to Question 8b	NO Go to Question 8b
8b	Mature forested wetlands. Is the wetland a forested wetland with 50% or more of the cover of upper forest canopy consisting of deciduous trees with large diameters at breast height (dbh), generally diameters greater than 45cm (17.7in) dbh?	YES Wetland should be evaluated for possible Category 3 status. Go to Question 9a	NO Go to Question 9a
9a	Lake Erie coastal and tributary wetlands. Is the wetland located at an elevation less than 575 feet on the USGS map, adjacent to this elevation, or along a tributary to Lake Erie that is accessible to fish?	YES Go to Question 9b	NO Go to Question 10
9b	Does the wetland's hydrology result from measures designed to prevent erosion and the loss of aquatic plants, i.e. the wetland is partially hydrologically restricted from Lake Erie due to lakeward or landward dikes or other hydrological controls?	YES Wetland should be evaluated for possible Category 3 status Go to Question 9d	NO Go to Question 9c
9c	Are Lake Erie water levels the wetland's primary hydrological influence, i.e. the wetland is hydrologically unrestricted (no lakeward or upland border alterations), or the wetland can be characterized as an "estuarine" wetland with lake and river influenced hydrology. These include sandbar deposition wetlands, estuarine wetlands, river mouth wetlands, or those dominated by submersed aquatic vegetation.	YES Go to Question 9d	NO Go to Question 9d
9d	Does the wetland have a predominance of native species within its vegetation communities, although non-native or disturbance tolerant native species can also be present?	YES Wetland is a Category 3 wetland Go to Question 10	NO Go to Question 9e
9e	Does the wetland have a predominance of non-native or disturbance tolerant native plant species within its vegetation communities?	YES Wetland should be evaluated for possible Category 3 status Go to Question 10	NO Go to Question 10
10	Lake Plain Sand Prairies (Oak Openings) Is the wetland located in Lucas, Fulton, Henry, or Wood Counties and can the wetland be characterized by the following description: the wetland has a sandy substrate with interspersed organic matter, a water table often within several inches of the surface, and often with a dominance of the gramineous vegetation listed in Table 1 (woody species may also be present). The Ohio Department of Natural Resources Division of Natural Areas and Preserves can provide assistance in confirming this type of wetland and its quality.	YES Wetland is a Category 3 wetland. Go to Question 11	NO Go to Question 11
11	Relict Wet Prairies. Is the wetland a relict wet prairie community dominated by some or all of the species in Table 1. Extensive prairies were formerly located in the Darby Plains (Madison and Union Counties), Sandusky Plains (Wyandot, Crawford, and Marion Counties), northwest Ohio, Erie County, and portions of western Ohio Counties (e.g. Darke, Mercer, Miami, Montgomery, etc.).	YES Wetland should be evaluated for possible Category 3 status Complete Quantitative Rating	NO Complete Quantitative Rating

Table 1. Characteristic plant species.

invasive/exotic spp	fen species	bog species	Oak Opening species	wet prairie species
<i>Lythrum salicaria</i>	<i>Zygadenus elegans</i> var. <i>glaucus</i>	<i>Calla palustris</i>	<i>Carex cryptolepis</i>	<i>Calamagrostis canadensis</i>
<i>Myriophyllum spicatum</i>	<i>Cacalia plantaginea</i>	<i>Carex atlantica</i> var. <i>capillacea</i>	<i>Carex lasiocarpa</i>	<i>Calamagrostis stricta</i>
<i>Najas minor</i>	<i>Carex flava</i>	<i>Carex echinata</i>	<i>Carex stricta</i>	<i>Carex atherodes</i>
<i>Phalaris arundinacea</i>	<i>Carex sterilis</i>	<i>Carex oligosperma</i>	<i>Cladium mariscoides</i>	<i>Carex buxbaumii</i>
<i>Phragmites australis</i>	<i>Carex stricta</i>	<i>Carex trisperma</i>	<i>Calamagrostis stricta</i>	<i>Carex pellita</i>
<i>Potamogeton crispus</i>	<i>Deschampsia caespitosa</i>	<i>Chamaedaphne calyculata</i>	<i>Calamagrostis canadensis</i>	<i>Carex sartwellii</i>
<i>Ranunculus ficaria</i>	<i>Eleocharis rostellata</i>	<i>Decodon verticillatus</i>	<i>Quercus palustris</i>	<i>Gentiana andrewsii</i>
<i>Rhamnus frangula</i>	<i>Eriophorum viridicarinatum</i>	<i>Eriophorum virginicum</i>		<i>Helianthus grosseserratus</i>
<i>Typha angustifolia</i>	<i>Gentianopsis</i> spp.	<i>Larix laricina</i>		<i>Liatris spicata</i>
<i>Typha xglauca</i>	<i>Lobelia kalmii</i>	<i>Nemopanthus mucronatus</i>		<i>Lysimachia quadriflora</i>
	<i>Parnassia glauca</i>	<i>Scheuchzeria palustris</i>		<i>Lythrum alatum</i>
	<i>Potentilla fruticosa</i>	<i>Sphagnum</i> spp.		<i>Pycnanthemum virginianum</i>
	<i>Rhamnus alnifolia</i>	<i>Vaccinium macrocarpon</i>		<i>Silphium terebinthinaceum</i>
	<i>Rhynchospora capillacea</i>	<i>Vaccinium corymbosum</i>		<i>Sorghastrum nutans</i>
	<i>Salix candida</i>	<i>Vaccinium oxycoccos</i>		<i>Spartina pectinata</i>
	<i>Salix myricoides</i>	<i>Woodwardia virginica</i>		<i>Solidago riddellii</i>
	<i>Salix serissima</i>	<i>Xyris difformis</i>		
	<i>Solidago ohioensis</i>			
	<i>Tofteldia glutinosa</i>			
	<i>Triglochin maritimum</i>			
	<i>Triglochin palustre</i>			

End of Narrative Rating. Begin Quantitative Rating on next page.

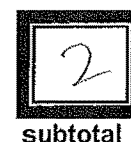
Quantitative Rating

Metric 1. Wetland area (max 6 pts). Estimate the area of wetland. Select the appropriate size class and assign score. Estimated areas should clearly place the wetland within the appropriate class.		score
6pts	≥50 acres (≥ 20.2ha)	
5pts	25 - <50 acres (10.1 - <20.2ha)	
4pts	10 - <25 acres (4.0 - <10.1ha)	
3pts	3 - <10 acres (1.2 - <4.0ha)	
2pts	0.3 - <3 acres (0.12 - <1.2ha)	
1pt	0.1 - <0.3 acres (0.04 - <0.12ha)	
0pts	< 0.1 acres (0.04ha)	✓

Table 2. Metric to English conversion table with visual estimation sizes.

acres	ft ²	yd ²	ft on side	yd on side	ha	m ²	m on side
50	2,177,983	241,998	1476	492	20.2	202,000	449
25	1,088,992	120,999	1044	348	10.1	101,000	318
10	435,596	48,340	660	220	4.1	41,000	203
3	130,679	14,520	362	121	1.2	12,000	110
0.3	13,067	1,452	114	38	0.12	1,200	35
0.1	4,356	484	66	22	0.04	400	20

Metric 2. Upland buffers and intensity of surrounding land uses. Maximum 14 points. Wetlands are systems transitional between upland and aquatic environments. Wetlands without "buffers", or that are located where human land use is more intensive, are often, but not always, more degraded.		score
2a. Average Buffer Width (abw). Calculate the average buffer width and select only one score. To calculate abw, estimate buffer width on each side (max of 50m) and divide by the number of sides. Example: abw of a wetland with buffers of 100m, 25m, 10m and 0m would be calculated as follows: $abw = (50m + 25m + 10m + 0m)/4 = 21.25m$. Intensive land uses are not buffers, e.g. active row cropping, recently abandoned fields, paved areas, housing developments, unfenced pasture, etc.		1
7pts	WIDE. >50m (164ft) or more around perimeter.	
4pts	MEDIUM. 25m to <50m (82 to <164ft) around the perimeter.	
1pt	NARROW. 10m to <25m (32 to <82ft) around the perimeter.	
0pts	VERY NARROW. <10m (<32ft) around perimeter.	✓
2b. Intensity of predominant surrounding land use(s). Select one, or double check up to two and average score, for the intensity of the predominant land use(s) outside the wetland's buffer zone (if any).		1
7pts	VERY LOW. 2 nd growth or older forest, prairie, savannah, wildlife area, etc.	
5pts	LOW. Old field (>10 yrs), shrubland, young 2 nd growth forest, etc.	
3pts	MODERATELY HIGH. Residential, fenced pasture, park, conservation tillage, new fallow field, etc.	
1pt	HIGH. urban, industrial, open pasture, row cropping, mining, construction, etc.	✓



subtotal

2

subtotal from previous page

Metric 3. Hydrology. Maximum 30 points. This metric evaluates the wetland's water budget, hydroperiod, the hydrologic connectivity of the wetland to other surface waters, and the degree to which the wetland's hydrology has been altered by human activity. A wetland can receive no more than 30 points for Metric 3 even though it is possible, to score more than 30 points.		
3a. Sources of Water. Select all that apply and sum score. This question relates to a wetland's water budget. It also is reflective that wetlands with certain types of water sources, or multiple water sources, e.g. high pH groundwater or perennial surface water connections, can be very high quality wetlands or can have high functions and values.		7
5pts	High pH groundwater (7.5-9.0)	
3pts	Other groundwater	✓
1pts	Precipitation	✓
3pts	Seasonal surface water	✓
5pts	Perennial surface water (lake or stream)	
3b. Connectivity. Select all that apply and sum score.		1
1pt	100 year floodplain. "Floodplain" is defined in OAC Rule 3745-1-50(P) as "...the relatively level land next to a stream or river channel that is periodically submerged by flood waters. It is composed of alluvium deposited by the present stream or river when it floods." Where they are available, flood insurance rate maps (FIRMs) and flood boundary and floodway maps may be used.	✓
1pt	between stream/lake and other human land use. This question asks whether the wetland is located <u>between</u> a surface water and a different adjacent land use, such that run-off from the adjacent land use could flow through wetland before it discharges into the surface water. "Different adjacent land uses" include agricultural, commercial, industrial, mining, or residential uses.	
1pt	part of wetland or upland (e.g. forest, prairie) complex. Both this and the next question ask whether the wetland is in physical proximity to, or a part of other nearby wetland or upland natural areas. The difference is whether the area the wetland is "long and narrow" like a river, or more "suarish" like a large forest or woodlot. If the latter is the case, this question applies; if the former, the next question applies. In a few instances, both may apply	
1pt	part of riparian or upland corridor. See description above.	
3c. Maximum water depth. Select only one and assign score. The Rater <i>does not</i> need to actually observe the wetland when its water depth is greatest in order to award the maximum points for this question. The use of secondary indicators, as outlined in the 1987 Manual will be useful in answering this question.		1
3pts	>0.7m (27.6in)	
2pts	0.4 to 0.7m (15.7 to 27.6in)	
1pt	<0.4m (<15.7in)	✓
3d. Duration of inundation/saturation. Select one or double check and average the scores if duration is uncertain. The use of secondary indicators is necessary and expected in order to properly answer this Question. Categories correspond to Zones II, III, and IV of 1987 Manual (Table 5). Zone IV subdivided into seasonally inundated and seasonally saturated.		2
4pts	Semipermanently to permanently inundated or saturated.	
3pts	Regularly inundated or saturated.	
2pts	Seasonally inundated.	✓
1pt	Seasonally saturated in the upper 30cm (12in) of soil.	

13

subtotal

13

subtotal from previous page

3e. Modifications to natural hydrologic regime. Check all observable modifications from list below. Score by selecting the most appropriate description of the wetland. Scores may be double checked and averaged. This question asks the Rater to evaluate the "intactness" of, or lack of disturbance to, the natural hydrologic regime of the type of wetland that is being evaluated.

It is very important to stress that this question does not discriminate between wetlands with different types of hydrologic regimes, e.g. between a forested seep wetland located on a floodplain with seasonal inundation and a leatherleaf (*Chamaedaphne calyculata*) bog with precipitation and minor amounts of surface run-off from a small watershed. Rather, it asks the rater to evaluate the "intactness" of the hydrologic regime attributable to *that type of wetland*. In the example above, both the forested seep wetland and the leatherleaf bog can score the maximum points (12) if there no, or no apparent, modifications to the natural hydrologic regime.

Once the Rater has listed all possible past and ongoing disturbances, the Rater should check the most appropriate category to describe the present state of the wetland. In instances where the Rater believes that a wetland falls between two categories, or where the Rater is uncertain as to which category is appropriate, it is appropriate to "double check" and average the score.

The labels on the scoring categories are intended to be descriptive but not controlling. In some instances, it may be more appropriate to consider the scoring categories as fixed locations on a hydrologic disturbance continuum, from very high to very low or no disturbance.

The Rater may check one or several of these possible disturbances, yet still determine that the natural hydrologic regime is intact. However, see Metric 4 where these same disturbances may be habitat alterations.

Check all that are observed present in or near the wetland.

<input type="checkbox"/>	ditch(es), in or near the wetland	<input checked="" type="checkbox"/>	point source discharges to the (non-stormwater)
<input type="checkbox"/>	tile(s), in or near the wetland	<input checked="" type="checkbox"/>	filling/grading activities in or near the wetland
<input type="checkbox"/>	dike(s), in or near the wetland	<input checked="" type="checkbox"/>	road beds/RR beds in or near the wetland
<input type="checkbox"/>	weir(s), in or near the wetland	<input type="checkbox"/>	dredging activities in or near the wetland
<input checked="" type="checkbox"/>	stormwater inputs (addition of water)	<input type="checkbox"/>	other (specify)

Circle one answer. Have any of the disturbances identified above caused or appear to have caused more than trivial alterations to the wetland's natural hydrologic regime, or have they occurred so far in the past that current hydrology should be considered to be "natural"?

YES

Assign a score 1, 3 or 7, or an intermediate score, depending on degree of recovery from the disturbance.

NO

Assign a score of 12 since there are no or no apparent modifications.

NOT SURE

Double check "none or none apparent" and "recovered" and assign a score of 9.5.

Select one or double check adjoining numbers and average the score.

score

12pts NONE OR NONE APPARENT. There are no modifications or no modifications that are apparent to the rater.

7pts RECOVERED. The wetland appears to have recovered from past modifications.

3pts RECOVERING. The wetland appears to be in the process of recovering from past modifications.

1pt RECENT OR NO RECOVERY. The modifications have occurred recently occurred, and/or the wetland has not recovered from past modifications, and/or the modifications are ongoing.

✓

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subtotal



subtotal from previous page

<p>Metric 4. Habitat Alteration and Development. Maximum 20 points. While hydrology may be the single most important determinant for the establishment and maintenance of specific types of wetlands and wetland processes, there is a range of other factors and activities which affect wetland quality and cause disturbances to wetlands that are unrelated to hydrology. This metric attempts to evaluate these things under the rubric "habitat alteration." In many instances, items checked as possible hydrologic disturbances in Question 3e will be instead alterations to a wetland's habitat or disruptions in its development (successional state). In other instances, a disturbance may be appropriately considered under both Metric 3 and Metric 4. In any case, the Rater should carefully consider what is the actual proximate (direct) cause of the disturbance to the wetland.</p>				
<p>4a. Substrate/Soil Disturbance. Select one or double check and average. This question evaluates physical disturbances to the soil and surface substrates of the wetland. Note also that the labels on the scoring categories are intended to be descriptive but not controlling. In some instances, it may be more appropriate to consider the scoring categories as fixed locations on a disturbance continuum, from very high to very low or no disturbance.</p> <p>Examples of substrate/soil disturbance include filling and grading, plowing, grazing (hooves), vehicle use (motorbikes, off-road vehicles, construction vehicles), sedimentation, dredging, and other mechanical disturbances to the surface substrates or soils.</p>				1
<p>Circle one answer. Have any of soil or substrate disturbances caused or appear to have caused more than trivial alterations to the wetland's natural soils or substrates, or have they occurred so far in the past that current conditions should be considered to be "natural"?</p>	<p>YES</p> <p>Assign a score 1, 2 or 3, or an intermediate score, depending on degree of recovery from the disturbance.</p>	<p>NO</p> <p>Assign a score of 4 since there are no or no apparent modifications.</p>	<p>NOT SURE</p> <p>Double check "none or none apparent" and "recovered" and assign a score of 3.5.</p>	

Select one or double check adjoining numbers and average the score.		score
4pts	NONE OR NONE APPARENT. There are no disturbances, or no disturbances apparent to the Rater.	
3pts	RECOVERED. The wetland appears to have recovered from past disturbances.	
2pts	RECOVERING. The wetland appears to be in the process of recovering from past disturbances.	
1pt	RECENT OR NO RECOVERY. The disturbances have occurred recently, and/or the wetland has not recovered from past disturbances, and/or the disturbances are ongoing.	✓

<p>4b. Habitat development. Select only one and assign score. This question asks the Rater to assign an overall qualitative rating of how well-developed the wetland is in comparison to other ecologically or hydrogeomorphically similar wetlands. This question presumes a good sense of the types of wetlands and the range in quality typical of the region, watershed, or state.</p>		1
7pts	EXCELLENT. Wetland appears to represent the best of its type or class.	
6pts	VERY GOOD. Wetland appears to be a very good example of its type or class but is lacking in characteristics which would make it excellent.	
5pts	GOOD. Wetland appears to be a good example of its type or class but because of past or present disturbances, successional state, or other reasons, is not excellent.	
4pts	MODERATELY GOOD. Wetland appears to be a fair to good example of its type or class.	
3pts	FAIR. Wetland appears to be a moderately good example of its type or class but because of past or present disturbances, successional state, etc. is not good.	
2pts	POOR TO FAIR. Wetland appears to be a poor to fair example of its type or class.	
1pt	POOR. Wetland appears to <u>not</u> be a good example of its type or class because of past or present disturbances, successional state, etc.	✓



subtotal

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subtotal from previous page

4c. Habitat alteration. This question evaluates the "intactness" the natural habitat of the type of wetland that is being evaluated. This question does not discriminate between wetlands with different types of habitat. Check all possible alterations that are observed. All available information, field visits, aerial photos, maps, etc. can be used to identify a possible alterations. Evaluate whether the alteration is trivial in relation to the wetlands overall habitat. Select the most appropriate score that best describes the present state of the wetland. It is appropriate to "double check" and average scores. In some instances, the scores can be viewed as a habitat alteration continuum, from very high to very low or no disturbance. **The Rater may check one or several of these possible disturbances, yet still determine that the natural habitat is intact.**

Check all that are observed present in or near the wetland.

<input checked="" type="checkbox"/>	Mowing		Herbaceous layer/aquatic bed removal
	Grazing (cattle, sheep, pigs, etc.)		Sedimentation
	Clearcutting		Dredging
	Selective cutting		Farming
	Woody debris removal		Nutrient enrichment, e.g. nuisance algae
<input checked="" type="checkbox"/>	Toxic pollutants	<input checked="" type="checkbox"/>	Other (specify) <i>Surrounded by landfill</i>
	Shrub/sapling removal		Other (specify)

Circle one answer. Have any of the disturbances identified above caused or appeared to cause more than trivial alterations to the wetland's natural habitat, or have occurred so far in the past that current habitat should be considered to be "natural."?

YES

Assign a score 1, 3 or 6, or an intermediate score, depending on degree of recovery from the disturbance.

NO

Assign a score of 9 since there are no or no apparent modifications.

NOT SURE

Double check "none or none apparent" and "recovered" and assign a score of 7.5.

Select one score or double check adjoining numbers and average the score.		
9pts	NONE OR NONE APPARENT. There are no alterations, or no alterations that are apparent to the Rater.	
6pts	RECOVERED. The wetland appears to have recovered from past alterations.	
3pts	RECOVERING. The wetland appears to be in the process of recovering from past alterations.	
1pt	RECENT OR NO RECOVERY. The alterations have occurred recently, and/or the wetland has not recovered from past alterations, and/or the alterations are ongoing.	<input checked="" type="checkbox"/>

Metric 5. Special wetland communities. Maximum 10 points. Assign or deduct points if wetland has the feature described. Refer to Narrative Rating for guidance. No wetland can receive more than 10 points even if multiple categories are applicable.

score

0

<input type="checkbox"/>	Bog (10 pts)	<input type="checkbox"/>	Lake plains sand prairies (Oak Openings) (10 pts)
<input type="checkbox"/>	Fen (10 pts)	<input type="checkbox"/>	Relict wet prairies (10 pts)
<input type="checkbox"/>	Old Growth Forest (10 pts)	<input type="checkbox"/>	Known occurrence of threatened/endangered species (10 pts)
<input type="checkbox"/>	Mature Forested Wetland (5 pts)	<input type="checkbox"/>	Significant migratory songbird/waterfowl habitat (10 pts)
<input type="checkbox"/>	Coastal wetlands, unrestricted hydrology (10 pts)	<input type="checkbox"/>	Category 1 wetlands (See Narrative Rating #5) (-10 pts)
<input type="checkbox"/>	Coastal wetlands, restricted hydrology (5 pts)	<input type="checkbox"/>	

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subtotal

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Metric 6. Vegetation, Interspersion, and Microtopography. Maximum 20 points.	
6a. Wetland Vegetation Communities. Check each community present both vertically and horizontally within the wetland with an area of at least 0.1 hectares or 1000m ² (0.2471 acres). Assign a score of 0 to 3 using Tables 3, Table 4 or Table 5. Sum the scores for the classes present.	
<input type="checkbox"/>	Aquatic Bed. Includes areas of wetlands dominated by plants that grow principally on or below the surface of the water for most of the growing season in most years. Floating aquatic species like duckweed (<i>Lemna</i> spp., <i>Spirodela</i> spp.) are excluded from definition of "aquatic bed." Aquatic beds often occur as a distinct zone as an "understory" below shrubs or trees.
<input type="checkbox"/>	Emergent. Includes areas of wetlands dominated by erect, rooted, herbaceous hydrophytes, excluding mosses and lichens. This vegetation is present for most of the growing season in most years. Common names for emergent communities include marsh, wet meadow, wet prairie, sedge meadow, fens, prairie pothole, and bluejoint slough.
<input type="checkbox"/>	Shrub. Includes areas of wetlands dominated by woody vegetation less than 6m (20 ft) tall. The plant species include true shrubs, young trees, or trees or shrubs that are small or stunted because of environmental conditions. Shrub wetlands may represent a successional stage leading to a forested wetland or they may be relatively stable plant communities.
<input type="checkbox"/>	Forested. Includes wetlands or areas of wetlands characterized by woody vegetation greater than 6m (20ft) or taller. Forested wetlands have an overstory of trees and often contain an understory of young trees and shrubs and an herbaceous layer, although the young tree/shrub and herbaceous layers can be largely missing from some types of forested wetlands. Some forested wetlands are defined as "vernal pools" in OAC Rule 3745-1-50.
<input type="checkbox"/>	Mudflats. The "mudflat" class is equivalent to the "unconsolidated bottom/mud" class/subclass (PUB ₃) described in Cowardin et al. (1979) and includes areas of wetlands characterized by exposed or shallowly inundated substrates with vegetative cover less than 30%.
<input type="checkbox"/>	Open water. The "open water" class is equivalent to the "open water - unknown bottom" class in Cowardin et al. (1979) and includes areas re 1) inundated, 2) unvegetated, and 3) and "open", i.e. there is no "canopy" of any type of vegetation.
<input checked="" type="checkbox"/>	Other (See User's Manual) <i>very small wetland</i>
	1

Table 3. Use this table to assign a cover score for Metric 6a to each of the vegetation communities identified on the preceding page. Refer to Table 6 for narrative descriptions of what "low," "moderate," and "high" quality mean.

Cover scale	Description
0	the vegetation community is either, 1) absent from wetland, or 2) comprises less than 0.1ha (0.2471 acres) of contiguous area within the wetland
1	vegetation community is present and either, 1) comprises a small part of the wetland's vegetation and is of low or moderate quality, or 2) if it comprises a significant part of the wetland's vegetation, the community is of low quality
2	the vegetation community is present and either, 1) comprises a significant part of the wetland's vegetation and is of moderate quality, or 2) the vegetation community comprises a small part of the wetland's vegetation but is of high quality
3	the vegetation community is of high quality and comprises a significant part, or more, of the wetland's vegetation.

Table 4. Use this table in conjunction with Table 5 to determine what is a "low," "moderate," or "high" quality community.

narrative	description
low	low species diversity and/or a predominance of non-native or disturbance tolerant native species
moderate	native species are the dominant component of the vegetation, although non-native or disturbance tolerant native species can also be present, and species diversity is moderate to moderately high, but generally without the presence of rare, threatened, or endangered species
high	a predominance of native species, with non-native species absent or virtually absent, and high species diversity and sometimes, but not always, the presence of rare, threatened or endangered species.

Table 5. Mudflat and open water community cover scale.

0	Absent <0.1ha (0.247 acres)
1	Low 0.1 to <1ha (0.247 to 2.47 acres)
2	Moderate 1ha to <4ha (2.47 to 9.88 acres)
3	High 4ha (9.88 acres) or more

18

subtotal

18

subtotal from previous page

6b. Horizontal (plan view) interspersión. Select only one and assign score. Evaluate the wetland from a "plan view," i.e. as if the looking down upon it. See Figure 1.		1
5pts	HIGH. Wetland has a high degree of interspersión.	
4pts	MODERATELY HIGH. Wetland has a moderately high degree of interspersión.	
3pts	MODERATE. Wetland has a moderate degree of interspersión.	
2pts	MODERATELY LOW. Wetland has a moderately low degree of interspersión.	
1pt	LOW. Wetland has a low degree of interspersión.	✓
0pts	NONE. Wetland has no plan view interspersión.	

6c. Coverage of Invasive Plant Species. Refer to Table 1 on Page 7 for list. Select only one and assign score.		-3
-5pts	Extensive. >75% areal cover of invasive species	
-3pts	Moderate 25-75% areal cover of invasive species	✓
-1pt	Sparse. 5-25% areal cover of invasive species	
0pts	Nearly absent. <5% areal cover of invasive species	
1pt	Absent.	

6d. Microtopography. Check each feature present in the wetland. Assign cover score of 0 to 3 using Table 6. Evaluate various microtopographic habitat features often present in wetlands.		1
Vegetated hummocks and tussocks.		
Coarse woody debris >15cm (6in) in diameter		
Standing dead trees >25cm (10in) diameter at breast height		
Amphibian breeding habitat, e.g. vernal pools with standing water of sufficient duration and depth to support reproduction, or habitat for frog reproduction.		✓

Table 6. Cover scale for microtopographic habitat features.

microtopographic habitat quality	narrative description
0	feature is absent or functionally absent from the wetland
1	feature is present in the wetland in very small amounts or if more common, of low quality
2	feature is present in moderate amounts, but not of highest quality, or in small amounts of highest quality
3	present in moderate or greater amounts and of highest quality

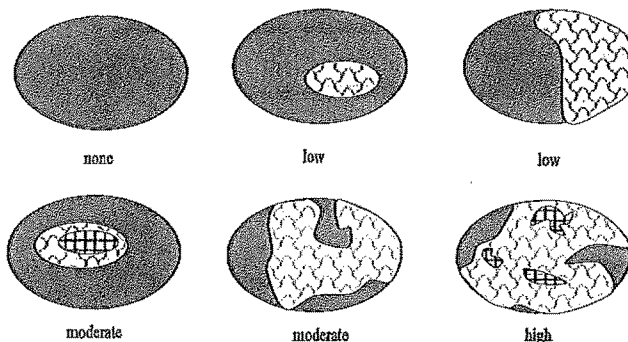


Figure 1. Hypothetical wetlands for estimating degree of interspersión.

17

GRAND TOTAL

End of Quantitative Rating. Complete Categorization Worksheets.

Refer to the most recent ORAM Score Calibration Report for the scoring breakpoints between wetland categories at the following address: <http://www.epa.ohio.gov/dsw/401/index.aspx>.

ORAM Summary Worksheet

		circle answer or insert score		Result
Narrative Rating	Question 1. Critical Habitat	YES	NO	If yes, Category 3.
	Question 2. Threatened or Endangered Species	YES	NO	If yes, Category 3.
	Question 3. High Quality Natural Wetland	YES	NO	If yes, Category 3.
	Question 4. Significant bird habitat	YES	NO	If yes, Category 3.
	Question 5. Category 1 Wetlands	YES	NO	If yes, Category 1.
	Question 6. Bogs	YES	NO	If yes, Category 3.
	Question 7. Fens	YES	NO	If yes, Category 3.
	Question 8a. Old Growth Forest	YES	NO	If yes, Category 3.
	Question 8b. Mature Forested Wetland	YES	NO	If yes, evaluate for Category 3; may also be 1 or 2.
	Question 9b. Lake Erie Wetlands - Restricted	YES	NO	If yes, evaluate for Category 3; may also be 1 or 2.
	Question 9d. Lake Erie Wetlands - Unrestricted.	YES	NO	If yes, Category 3
	Question 9e. Lake Erie Wetlands - Unrestricted with invasive plants	YES	NO	If yes, evaluate for Category 3; may also be 1 or 2.
Question 10. Oak Openings	YES	NO	If yes, Category 3	
Question 11. Relict Wet Prairies	YES	NO	If yes, evaluate for Category 3; may also be 1 or 2.	
Quantitative Rating	Metric 1. Size			0
	Metric 2. Buffers and surrounding land use			2
	Metric 3. Hydrology			12
	Metric 4. Habitat			3
	Metric 5. Special Wetland Communities			0
	Metric 6. Plant communities, interspersed, microtopography			0
	TOTAL SCORE Consult most recent score calibration report at http://www.epa.ohio.gov/dsw/401/index.aspx to determine the wetland's category based on its quantitative score		17	Category based on score breakpoints <div style="text-align: center; font-size: 2em;">1</div>

Complete Wetland Categorization Worksheet.

Wetland Categorization Worksheet

Choices	Circle one		Evaluation of Categorization Result of ORAM
Did you answer "Yes" to any of the following questions: Narrative Rating Nos. 2, 3, 4, 6, 7, 8a, 9d, 10	YES Wetland is categorized as a Category 3 wetland	<input checked="" type="radio"/> NO	Is quantitative rating score <i>less</i> than the Category 2 scoring threshold (<i>excluding</i> gray zone)? If yes, reevaluate the category of the wetland using the narrative criteria in OAC Rule 3745-1-54(C) and biological and/or functional assessments to determine if the wetland has been over-categorized by the ORAM
Did you answer "Yes" to any of the following questions: Narrative Rating Nos. 1, 8b, 9b, 9e, 11	YES Wetland should be evaluated for possible Category 3 status	<input checked="" type="radio"/> NO	Evaluate the wetland using the 1) narrative criteria in OAC Rule 3745-1-54(C) and 2) the quantitative rating score. If the wetland is determined to be a Category 3 wetland using either of these, it should be categorized as a Category 3 wetland. Detailed biological and/or functional assessments may also be used to determine the wetland's category.
Did you answer "Yes" to Narrative Rating No. 5	YES Wetland is categorized as a Category 1 wetland	<input checked="" type="radio"/> NO	Is quantitative rating score <i>greater</i> than the Category 2 scoring threshold (<i>including</i> any gray zone)? If yes, reevaluate the category of the wetland using the narrative criteria in OAC Rule 3745-1-54(C) and biological and/or functional assessments to determine if the wetland has been under-categorized by the ORAM
Does the quantitative score fall within the scoring range of a Category 1, 2, or 3 wetland?	<input checked="" type="radio"/> YES Wetland is assigned to the appropriate category based on the scoring range	<input type="radio"/> NO	If the score of the wetland is located within the scoring range for a particular category, the wetland should be assigned to that category. In all instances however, the narrative criteria described in OAC Rule 3745-1-54(C) can be used to clarify or change a categorization based on an quantitative score.
Does the quantitative score fall with the "gray zone" for Category 1 or 2 or Category 2 or 3 wetlands?	YES Wetland is assigned to the higher of the two categories or assigned to a category based on detailed assessments and the narrative criteria	<input checked="" type="radio"/> NO	Rater has the option of assigning the wetland to the higher of the two categories or to assign a category based on the results of a nonrapid wetland assessment method, e.g. functional assessment, biological assessment, etc. and a consideration of the narrative criteria in OAC rule 3745-1-54(C).
Does the wetland otherwise exhibit <i>moderate OR superior</i> hydrologic OR habitat, OR recreational functions AND the wetland was <i>not</i> categorized as a Category 2 wetland (in the case of moderate functions) or a Category 3 wetland (in the case of superior functions) by this method?	YES Wetland was undercategorized by this method. A written justification for recategorization should be provided on Background Information Form	<input checked="" type="radio"/> NO Wetland is assigned to category as determined by the ORAM.	A wetland may be undercategorized using this method, but still exhibit one or more superior functions, e.g. a wetland's biotic communities may be degraded by human activities, but the wetland may still exhibit superior hydrologic functions because of its type, landscape position, size, local or regional significance, etc. In this circumstance, the narrative criteria in OAC Rule 3745-1-54(C)(2) and (3) are controlling, and the under-categorization should be corrected. A written justification with supporting reasons or information for this determination should be provided.

Final Category

Choose one	<input checked="" type="radio"/> Category 1	<input type="radio"/> Category 2	<input type="radio"/> Category 3
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End of Ohio Rapid Assessment Method for Wetlands.

"BIG POND/AREA C"

Ohio Rapid Assessment Method for Wetlands		
Version 5.0	Background Information	Ohio EPA, Division of Surface Water Final: February 1, 2001
	Score Boundary Worksheet	
	Narrative Rating	
	Quantitative Rating	
	Categorization Worksheets	
	Field Scoring Form	
Pursuant to ORC Section 3745.30, the Ohio Rapid Assessment Method for Wetlands is a guidance or policy and DOES NOT HAVE THE FORCE OF LAW		

Instructions

The investigator is *STRONGLY URGED* to read the Manual for Using the Ohio Rapid Assessment Method for Wetlands for further elaboration and discussion of the questions below prior to using the rating forms.

The Narrative Rating is designed to categorize a wetland or to provide alerts to the Rater based on the presence or possible presence of threatened or endangered species. The presence or proximity of such species is often an indicator of the quality and lack of disturbance of the wetland being evaluated. In addition, it is designed to categorize certain wetlands as very low quality (Category 1) or very high quality (Category 3) regardless of the wetland's score on the Quantitative Rating. In addition, the Narrative Rating also alerts the investigator that a particular wetland *may* be a Category 3 wetland, again, regardless of the wetland's score on the Quantitative Rating.

It is *VERY IMPORTANT* to properly and thoroughly answer each of the questions in the ORAM in order to properly categorize a wetland. To *properly* answer all the questions, the boundaries of the wetland being assessed must be correctly identified. Refer to Scoring Boundary worksheet and the User's Manual for a discussion of how to determine the "scoring boundaries." In some instances, the scoring boundaries may differ from the "jurisdictional boundaries."

Refer to the most recent ORAM Score Calibration Report for the scoring breakpoints between wetland categories. The most recent version of this document is posted on Ohio EPA's Division of Surface Water web page at the following address: <http://www.epa.ohio.gov/dsw/401/index.aspx>.

Background Information

Name: SCOTT BUSH	
Date: 7/29/2013	
Affiliation: CRA	
Address: 410 EAGLEVIEW BLVD. STE 110, EYTON, PA 19341	
Phone Number: 610-321-1800	
e-mail address: sbush@craworld.com	
Name of Wetland: BIG POND / AREA C - DAYTON LANDFILL	
Vegetation Community(ies): PEM	
HGM Class(es): Depressional	
Location of Wetland include map, address, north arrow, landmarks, distances, roads, etc. SEE SITE FIGURES (FIG 1 & 2)	
Lat/Long or UTM Coordinate	39.77650 N 84.22225W
USGS Quad Name	SOUTH DAYTON
County	MONTGOMERY
Township	
Section and Subsection	
Hydrologic Unit Code	05080020105
Site Visit	✓
National Wetland Inventory Map	✓
Ohio Wetland Inventory Map	✓
Soil Survey	✓
Delineation report/map	✓
Wetland Size (acres, hectares)	0.8 ACRE

Name: BIG POND / AREA C	
sketch (include north arrow, relationship with other surface waters, vegetation zones, etc.) SEE SITE PLAN (ATTACHMENT A)	
Comments, Narrative Discussion, Justification of Category Changes SEE WETLAND REPORT	
Final score : 27.5	Category 1

Scoring Boundary Worksheet

INSTRUCTIONS. The initial step in completing the ORAM is to identify the “scoring boundaries” of the wetland being rated. In many instances this determination will be relatively easy and the scoring boundaries will coincide with the “jurisdictional boundaries.” For example, the scoring boundary of an isolated cattail marsh located in the middle of a farm field will likely be the same as that wetland’s jurisdictional boundaries. In other instances, however, the scoring boundary will not be as easily determined. Wetlands that are small or isolated from other surface waters often form large contiguous areas or heterogeneous complexes of wetland and upland. In separating wetlands for scoring purposes, the hydrologic regime of the wetland is the main criterion that should be used. Boundaries between contiguous or connected wetlands should be established where the volume, flow, or velocity of water moving through the wetland changes significantly. *Areas with a high degree of hydrologic interaction should be scored as a single wetland.* In determining a wetland’s scoring boundaries, use the guidelines in the ORAM Manual Section 5.0. In certain instances, it may be difficult to establish the scoring boundary for the wetland being rated. These problem situations include wetlands that form a patchwork on the landscape, wetlands divided by artificial boundaries like property fences, roads, or railroad embankments, wetlands that are contiguous with streams, lakes, or rivers, and estuarine or coastal wetlands. These situations are discussed below, however, it is recommended that Rater contact Ohio EPA, Division of Surface Water, 401/Wetlands Unit if there are additional questions or a need for further clarification of the appropriate scoring boundaries of a particular wetland.

#	Steps in properly establishing scoring boundaries	done?	not applicable
Step 1	Identify the wetland area of interest. This may be the site of a proposed impact, a mitigation site, conservation site, etc.	✓	
Step 2	Identify the locations where there is physical evidence that hydrology changes rapidly. Such evidence includes both natural and human-induced changes including, constrictions caused by berms or dikes, points where the water velocity changes rapidly at rapids or falls, points where significant inflows occur at the confluence of rivers, or other factors that may restrict hydrologic interaction between the wetlands or parts of a single wetland.	✓	
Step 3	Delineate the boundary of the wetland to be rated such that all areas of interest that are contiguous to and within the areas where the hydrology does not change significantly, i.e. areas that have a high degree of hydrologic interaction are included within the scoring boundary.	✓	
Step 4	Determine if artificial boundaries, such as property lines, state lines, roads, railroad embankments, etc., are present. These should not be used to establish scoring boundaries unless they coincide with areas where the hydrologic regime changes.	✓	
Step 5	In all instances, the Rater may enlarge the minimum scoring boundaries discussed here to score together wetlands that could be scored separately.		✓
Step 6	Consult ORAM Manual Section 5.0 for how to establish scoring boundaries for wetlands that form a patchwork on the landscape, divided by artificial boundaries, contiguous to streams, lakes or rivers, or for dual classifications.		✓

Narrative Rating

INSTRUCTIONS. Answer each of the following questions. Questions 1, 2, 3 and 4 should be answered based on information obtained from the site visit or the literature *and* by submitting a Data Services Request to the Ohio Department of Natural Resources, Division of Natural Areas and Preserves, Natural Heritage Data Services, 1889 Fountain Square Court, Building F-1, Columbus, Ohio 43224, 614-265-6453 (phone), 614-265-3096 (fax), <http://www.dnr.state.oh.us/dnap>. The remaining questions are designed to be answered primarily by the results of the site visit. Refer to the User's Manual for descriptions of these wetland types. Note: "Critical habitat" is a legally defined in the Endangered Species Act and is the geographic area containing physical or biological features essential to the conservation of a listed species or as an area that may require special management considerations or protection. The Rater should contact the Region 3 Headquarters or the Reynoldsburg Ecological Services Office for updates as to whether critical habitat has been designated for other federally listed threatened or endangered species. "Documented" means the wetland is listed in the appropriate State of Ohio database.

#	Question	Circle one	
1	Critical Habitat. Is the wetland in a township, section, or subsection of a United States Geological Survey 7.5 minute Quadrangle that has been designated by the U.S. Fish and Wildlife Service as "critical habitat" for any threatened or endangered plant or animal species? Note: as of January 1, 2001, of the federally listed endangered or threatened species which can be found in Ohio, the Indiana Bat has had critical habitat designated (50 CFR 17.95(a)) and the piping plover has had critical habitat proposed (65 FR 41812 July 6, 2000).	YES Wetland should be evaluated for possible Category 3 status Go to Question 2	NO Go to Question 2
2	Threatened or Endangered Species. Is the wetland known to contain an individual of, or documented occurrences of federal or state-listed threatened or endangered plant or animal species?	YES Wetland is a Category 3 wetland. Go to Question 3	NO Go to Question 3
3	Documented High Quality Wetland. Is the wetland on record in Natural Heritage Database as a high quality wetland?	YES Wetland is a Category 3 wetland Go to Question 4	NO Go to Question 4
4	Significant Breeding or Concentration Area. Does the wetland contain documented regionally significant breeding or nonbreeding waterfowl, neotropical songbird, or shorebird concentration areas?	YES Wetland is a Category 3 wetland Go to Question 5	NO Go to Question 5
5	Category 1 Wetlands. Is the wetland less than 0.5 hectares (1 acre) in size and hydrologically isolated and either 1) comprised of vegetation that is dominated (greater than eighty per cent areal cover) by <i>Phalaris arundinacea</i> , <i>Lythrum salicaria</i> , or <i>Phragmites australis</i> , or 2) an acidic pond created or excavated on mined lands that has little or no vegetation?	YES Wetland is a Category 1 wetland Go to Question 6	NO Go to Question 6
6	Bogs. Is the wetland a peat-accumulating wetland that 1) has no significant inflows or outflows, 2) supports acidophilic mosses, particularly <i>Sphagnum</i> spp., 3) the acidophilic mosses have >30% cover, 4) at least one species from Table 1 is present, and 5) the cover of invasive species (see Table 1) is <25%?	YES Wetland is a Category 3 wetland Go to Question 7	NO Go to Question 7
7	Fens. Is the wetland a carbon accumulating (peat, muck) wetland that is the saturated during most of the year, primarily by a discharge of free flowing, mineral rich, ground water with a circumneutral pH (5.5-9.0) and with one or more plant species listed in Table 1 and the cover of invasive species listed in Table 1 is <25%?	YES Wetland is a Category 3 wetland Go to Question 8a	NO Go to Question 8a

#	Question	Circle one	
8a	"Old Growth Forest." Is the wetland a forested wetland and is the forest characterized by, but not limited to, the following characteristics: overstory canopy trees of great age (exceeding at least 50% of a projected maximum attainable age for a species); little or no evidence of human-caused understory disturbance during the past 80 to 100 years; an all-aged structure and multilayered canopies; aggregations of canopy trees interspersed with canopy gaps; and significant numbers of standing dead snags and downed logs?	YES Wetland is a Category 3 wetland. Go to Question 8b	NO Go to Question 8b
8b	Mature forested wetlands. Is the wetland a forested wetland with 50% or more of the cover of upper forest canopy consisting of deciduous trees with large diameters at breast height (dbh), generally diameters greater than 45cm (17.7in) dbh?	YES Wetland should be evaluated for possible Category 3 status. Go to Question 9a	NO Go to Question 9a
9a	Lake Erie coastal and tributary wetlands. Is the wetland located at an elevation less than 575 feet on the USGS map, adjacent to this elevation, or along a tributary to Lake Erie that is accessible to fish?	YES Go to Question 9b	NO Go to Question 10
9b	Does the wetland's hydrology result from measures designed to prevent erosion and the loss of aquatic plants, i.e. the wetland is partially hydrologically restricted from Lake Erie due to lakeward or landward dikes or other hydrological controls?	YES Wetland should be evaluated for possible Category 3 status Go to Question 9d	NO Go to Question 9c
9c	Are Lake Erie water levels the wetland's primary hydrological influence, i.e. the wetland is hydrologically unrestricted (no lakeward or upland border alterations), or the wetland can be characterized as an "estuarine" wetland with lake and river influenced hydrology. These include sandbar deposition wetlands, estuarine wetlands, river mouth wetlands, or those dominated by submersed aquatic vegetation.	YES Go to Question 9d	NO Go to Question 9d
9d	Does the wetland have a predominance of native species within its vegetation communities, although non-native or disturbance tolerant native species can also be present?	YES Wetland is a Category 3 wetland Go to Question 10	NO Go to Question 9e
9e	Does the wetland have a predominance of non-native or disturbance tolerant native plant species within its vegetation communities?	YES Wetland should be evaluated for possible Category 3 status Go to Question 10	NO Go to Question 10
10	Lake Plain Sand Prairies (Oak Openings) Is the wetland located in Lucas, Fulton, Henry, or Wood Counties and can the wetland be characterized by the following description: the wetland has a sandy substrate with interspersed organic matter, a water table often within several inches of the surface, and often with a dominance of the gramineous vegetation listed in Table 1 (woody species may also be present). The Ohio Department of Natural Resources Division of Natural Areas and Preserves can provide assistance in confirming this type of wetland and its quality.	YES Wetland is a Category 3 wetland. Go to Question 11	NO Go to Question 11
11	Relict Wet Prairies. Is the wetland a relict wet prairie community dominated by some or all of the species in Table 1. Extensive prairies were formerly located in the Darby Plains (Madison and Union Counties), Sandusky Plains (Wyandot, Crawford, and Marion Counties), northwest Ohio, Erie County, and portions of western Ohio Counties (e.g. Darke, Mercer, Miami, Montgomery, etc.).	YES Wetland should be evaluated for possible Category 3 status Complete Quantitative Rating	NO Complete Quantitative Rating

Table 1. Characteristic plant species.

invasive/exotic spp	fen species	bog species	Oak Opening species	wet prairie species
<i>Lythrum salicaria</i>	<i>Zygadenus elegans</i> var. <i>glaucus</i>	<i>Calla palustris</i>	<i>Carex cryptolepis</i>	<i>Calamagrostis canadensis</i>
<i>Myriophyllum spicatum</i>	<i>Cacalia plantaginea</i>	<i>Carex atlantica</i> var. <i>capillacea</i>	<i>Carex lasiocarpa</i>	<i>Calamagrostis stricta</i>
<i>Najas minor</i>	<i>Carex flava</i>	<i>Carex echinata</i>	<i>Carex stricta</i>	<i>Carex atherodes</i>
<i>Phalaris arundinacea</i>	<i>Carex sterilis</i>	<i>Carex oligosperma</i>	<i>Cladium mariscoides</i>	<i>Carex buxbaumii</i>
<i>Phragmites australis</i>	<i>Carex stricta</i>	<i>Carex trisperma</i>	<i>Calamagrostis stricta</i>	<i>Carex pellita</i>
<i>Potamogeton crispus</i>	<i>Deschampsia caespitosa</i>	<i>Chamaedaphne calyculata</i>	<i>Calamagrostis canadensis</i>	<i>Carex sartwellii</i>
<i>Ranunculus ficaria</i>	<i>Eleocharis rostellata</i>	<i>Decodon verticillatus</i>	<i>Quercus palustris</i>	<i>Gentiana andrewsii</i>
<i>Rhamnus frangula</i>	<i>Eriophorum viridicarinatum</i>	<i>Eriophorum virginicum</i>		<i>Helianthus grosseserratus</i>
<i>Typha angustifolia</i>	<i>Gentianopsis</i> spp.	<i>Larix laricina</i>		<i>Liatris spicata</i>
<i>Typha xglauca</i>	<i>Lobelia kalmii</i>	<i>Nemopanthus mucronatus</i>		<i>Lysimachia quadriflora</i>
	<i>Parnassia glauca</i>	<i>Scheuchzeria palustris</i>		<i>Lythrum alatum</i>
	<i>Potentilla fruticosa</i>	<i>Sphagnum</i> spp.		<i>Pycnanthemum virginianum</i>
	<i>Rhamnus alnifolia</i>	<i>Vaccinium macrocarpon</i>		<i>Silphium terebinthinaceum</i>
	<i>Rhynchospora capillacea</i>	<i>Vaccinium corymbosum</i>		<i>Sorghastrum nutans</i>
	<i>Salix candida</i>	<i>Vaccinium oxycoccos</i>		<i>Spartina pectinata</i>
	<i>Salix myricoides</i>	<i>Woodwardia virginica</i>		<i>Solidago riddellii</i>
	<i>Salix serissima</i>	<i>Xyris difformis</i>		
	<i>Solidago ohioensis</i>			
	<i>Tofieldia glutinosa</i>			
	<i>Triglochin maritimum</i>			
	<i>Triglochin palustre</i>			

End of Narrative Rating. Begin Quantitative Rating on next page.

Quantitative Rating

Metric 1. Wetland area (max 6 pts). Estimate the area of wetland. Select the appropriate size class and assign score. Estimated areas should clearly place the wetland within the appropriate class.		score 2
6pts	≥50 acres (≥ 20.2ha)	
5pts	25 - <50 acres (10.1 - <20.2ha)	
4pts	10 - <25 acres (4.0 - <10.1ha)	
3pts	3 - <10 acres (1.2 - <4.0ha)	
2pts	0.3 - <3 acres (0.12 - <1.2ha)	✓
1pt	0.1 - <0.3 acres (0.04 - <0.12ha)	
0pts	< 0.1 acres (0.04ha)	

Table 2. Metric to English conversion table with visual estimation sizes.

acres	ft ²	yd ²	ft on side	yd on side	ha	m ²	m on side
50	2,177,983	241,998	1476	492	20.2	202,000	449
25	1,088,992	120,999	1044	348	10.1	101,000	318
10	435,596	48,340	660	220	4.1	41,000	203
3	130,679	14,520	362	121	1.2	12,000	110
0.3	13,067	1,452	114	38	0.12	1,200	35
0.1	4,356	484	66	22	0.04	400	20

Metric 2. Upland buffers and intensity of surrounding land uses. Maximum 14 points. Wetlands are systems transitional between upland and aquatic environments. Wetlands without "buffers", or that are located where human land use is more intensive, are often, but not always, more degraded.		score
2a. Average Buffer Width (abw). Calculate the average buffer width and select only one score. To calculate abw, estimate buffer width on each side (max of 50m) and divide by the number of sides. Example: abw of a wetland with buffers of 100m, 25m, 10m and 0m would be calculated as follows: $abw = (50m + 25m + 10m + 0m)/4 = 21.25m$. Intensive land uses are not buffers, e.g. active row cropping, recently abandoned fields, paved areas, housing developments, unfenced pasture, etc.		0
7pts	WIDE. >50m (164ft) or more around perimeter.	
4pts	MEDIUM. 25m to <50m (82 to <164ft) around the perimeter.	
1pt	NARROW. 10m to <25m (32 to <82ft) around the perimeter.	
0pts	VERY NARROW. <10m (<32ft) around perimeter.	✓
2b. Intensity of predominant surrounding land use(s). Select one, or double check up to two and average score, for the intensity of the predominant land use(s) outside the wetland's buffer zone (if any).		1
7pts	VERY LOW. 2 nd growth or older forest, prairie, savannah, wildlife area, etc.	
5pts	LOW. Old field (>10 yrs), shrubland, young 2 nd growth forest, etc.	
3pts	MODERATELY HIGH. Residential, fenced pasture, park, conservation tillage, new fallow field, etc.	
1pt	HIGH. urban, industrial, open pasture, row cropping, mining, construction, etc.	✓

3

subtotal

3

subtotal from previous page

Metric 3. Hydrology. Maximum 30 points. This metric evaluates the wetland's water budget, hydroperiod, the hydrologic connectivity of the wetland to other surface waters, and the degree to which the wetland's hydrology has been altered by human activity. A wetland can receive no more than 30 points for Metric 3 even though it is possible, to score more than 30 points.		
3a. Sources of Water. Select all that apply and sum score. This question relates to a wetland's water budget. It also is reflective that wetlands with certain types of water sources, or multiple water sources, e.g. high pH groundwater or perennial surface water connections, can be very high quality wetlands or can have high functions and values.		7
5pts	High pH groundwater (7.5-9.0)	
3pts	Other groundwater	✓
1pts	Precipitation	✓
3pts	Seasonal surface water	✓
5pts	Perennial surface water (lake or stream)	
3b. Connectivity. Select all that apply and sum score.		1
1pt	100 year floodplain. "Floodplain" is defined in OAC Rule 3745-1-50(P) as "...the relatively level land next to a stream or river channel that is periodically submerged by flood waters. It is composed of alluvium deposited by the present stream or river when it floods." Where they are available, flood insurance rate maps (FIRMs) and flood boundary and floodway maps may be used.	✓
1pt	between stream/lake and other human land use. This question asks whether the wetland is located <u>between</u> a surface water and a different adjacent land use, such that run-off from the adjacent land use could flow through wetland before it discharges into the surface water. "Different adjacent land uses" include agricultural, commercial, industrial, mining, or residential uses.	
1pt	part of wetland or upland (e.g. forest, prairie) complex. Both this and the next question ask whether the wetland is in physical proximity to, or a part of other nearby wetland or upland natural areas. The difference is whether the area the wetland is "long and narrow" like a river, or more "squarish" like a large forest or woodlot. If the latter is the case, this question applies; if the former, the next question applies. In a few instances, both may apply	
1pt	part of riparian or upland corridor. See description above.	
3c. Maximum water depth. Select only one and assign score. The Rater <i>does not</i> need to actually observe the wetland when its water depth is greatest in order to award the maximum points for this question. The use of secondary indicators, as outlined in the 1987 Manual will be useful in answering this question.		2
3pts	>0.7m (27.6in)	
2pts	0.4 to 0.7m (15.7 to 27.6in)	✓
1pt	<0.4m (<15.7in)	
3d. Duration of inundation/saturation. Select one or double check and average the scores if duration is uncertain. The use of secondary indicators is necessary and expected in order to properly answer this Question. Categories correspond to Zones II, III, and IV of 1987 Manual (Table 5). Zone IV subdivided into seasonally inundated and seasonally saturated.		1.5
4pts	Semipermanently to permanently inundated or saturated.	
3pts	Regularly inundated or saturated.	
2pts	Seasonally inundated.	
1pt	Seasonally saturated in the upper 30cm (12in) of soil.	✓

14.5

subtotal

145

subtotal from previous page

3e. Modifications to natural hydrologic regime. Check all observable modifications from list below. Score by selecting the most appropriate description of the wetland. Scores may be double checked and averaged. This question asks the Rater to evaluate the "intactness" of, or lack of disturbance to, the natural hydrologic regime of the type of wetland that is being evaluated.

It is very important to stress that this question does not discriminate between wetlands with different types of hydrologic regimes, e.g. between a forested seep wetland located on a floodplain with seasonal inundation and a leatherleaf (*Chamaedaphne calyculata*) bog with precipitation and minor amounts of surface run-off from a small watershed. Rather, it asks the rater to evaluate the "intactness" of the hydrologic regime attributable to *that type of wetland*. In the example above, both the forested seep wetland and the leatherleaf bog can score the maximum points (12) if there no, or no apparent, modifications to the natural hydrologic regime.

Once the Rater has listed all possible past and ongoing disturbances, the Rater should check the most appropriate category to describe the present state of the wetland. In instances where the Rater believes that a wetland falls between two categories, or where the Rater is uncertain as to which category is appropriate, it is appropriate to "double check" and average the score.

The labels on the scoring categories are intended to be descriptive but not controlling. In some instances, it may be more appropriate to consider the scoring categories as fixed locations on a hydrologic disturbance continuum, from very high to very low or no disturbance.

The Rater may check one or several of these possible disturbances, yet still determine that the natural hydrologic regime is intact. However, see Metric 4 where these same disturbances may be habitat alterations.

3

Check all that are observed present in or near the wetland.

<input type="checkbox"/>	ditch(es), in or near the wetland	<input checked="" type="checkbox"/>	point source discharges to the (non-stormwater)
<input type="checkbox"/>	tile(s), in or near the wetland	<input checked="" type="checkbox"/>	filling/grading activities in or near the wetland
<input type="checkbox"/>	dike(s), in or near the wetland	<input type="checkbox"/>	road beds/RR beds in or near the wetland
<input type="checkbox"/>	weir(s), in or near the wetland	<input type="checkbox"/>	dredging activities in or near the wetland
<input checked="" type="checkbox"/>	stormwater inputs (addition of water)	<input type="checkbox"/>	other (specify)

Circle one answer. Have any of the disturbances identified above caused or appear to have caused more than trivial alterations to the wetland's natural hydrologic regime, or have they occurred so far in the past that current hydrology should be considered to be "natural"?

YES

Assign a score 1, 3 or 7, or an intermediate score, depending on degree of recovery from the disturbance.

3

NO

Assign a score of 12 since there are no or no apparent modifications.

NOT SURE

Double check "none or none apparent" and "recovered" and assign a score of 9.5.

Select one or double check adjoining numbers and average the score.

score

12pts	NONE OR NONE APPARENT. There are no modifications or no modifications that are apparent to the rater.	
7pts	RECOVERED. The wetland appears to have recovered from past modifications.	
3pts	RECOVERING. The wetland appears to be in the process of recovering from past modifications.	<input checked="" type="checkbox"/>
1pt	RECENT OR NO RECOVERY. The modifications have occurred recently occurred, and/or the wetland has not recovered from past modifications, and/or the modifications are ongoing.	

175

subtotal

17.5

subtotal from previous page

Metric 4. Habitat Alteration and Development. Maximum 20 points. While hydrology may be the single most important determinant for the establishment and maintenance of specific types of wetlands and wetland processes, there is a range of other factors and activities which affect wetland quality and cause disturbances to wetlands that are unrelated to hydrology. This metric attempts to evaluate these things under the rubric "habitat alteration." In many instances, items checked as possible hydrologic disturbances in Question 3e will be instead alterations to a wetland's habitat or disruptions in its development (successional state). In other instances, a disturbance may be appropriately considered under both Metric 3 and Metric 4. In any case, the Rater should carefully consider what is the actual proximate (direct) cause of the disturbance to the wetland.				
4a. Substrate/Soil Disturbance. Select one or double check and average. This question evaluates physical disturbances to the soil and surface substrates of the wetland. Note also that the labels on the scoring categories are intended to be descriptive but not controlling. In some instances, it may be more appropriate to consider the scoring categories as fixed locations on a disturbance continuum, from very high to very low or no disturbance.				2
Examples of substrate/soil disturbance include filling and grading, plowing, grazing (hooves), vehicle use (motorbikes, off-road vehicles, construction vehicles), sedimentation, dredging, and other mechanical disturbances to the surface substrates or soils.				
Circle one answer. Have any of soil or substrate disturbances caused or appear to have caused more than trivial alterations to the wetland's natural soils or substrates, or have they occurred so far in the past that current conditions should be considered to be "natural"?	YES Assign a score 1, 2 or 3, or an intermediate score, depending on degree of recovery from the disturbance.	NO Assign a score of 4 since there are no or no apparent modifications.	NOT SURE Double check "none or none apparent" and "recovered" and assign a score of 3.5.	
Select one or double check adjoining numbers and average the score.				score
4pts	NONE OR NONE APPARENT. There are no disturbances, or no disturbances apparent to the Rater.			
3pts	RECOVERED. The wetland appears to have recovered from past disturbances.			
2pts	RECOVERING. The wetland appears to be in the process of recovering from past disturbances.			✓
1pt	RECENT OR NO RECOVERY. The disturbances have occurred recently, and/or the wetland has not recovered from past disturbances, and/or the disturbances are ongoing.			
4b. Habitat development. Select only one and assign score. This question asks the Rater to assign an overall qualitative rating of how well-developed the wetland is in comparison to other ecologically or hydrogeomorphically similar wetlands. This question presumes a good sense of the types of wetlands and the range in quality typical of the region, watershed, or state.				2
7pts	EXCELLENT. Wetland appears to represent the best of its type or class.			
6pts	VERY GOOD. Wetland appears to be a very good example of its type or class but is lacking in characteristics which would make it excellent.			
5pts	GOOD. Wetland appears to be a good example of its type or class but because of past or present disturbances, successional state, or other reasons, is not excellent.			
4pts	MODERATELY GOOD. Wetland appears to be a fair to good example of its type or class.			
3pts	FAIR. Wetland appears to be a moderately good example of its type or class but because of past or present disturbances, successional state, etc. is not good.			
2pts	POOR TO FAIR. Wetland appears to be a poor to fair example of its type or class.			✓
1pt	POOR. Wetland appears to <u>not</u> be a good example of its type or class because of past or present disturbances, successional state, etc.			

21.5

subtotal

21.5

subtotal from previous page

4c. Habitat alteration. This question evaluates the "intactness" the natural habitat of the type of wetland that is being evaluated. This question does not discriminate between wetlands with different types of habitat. Check all possible alterations that are observed. All available information, field visits, aerial photos, maps, etc. can be used to identify a possible alterations. Evaluate whether the alteration is trivial in relation to the wetlands overall habitat. Select the most appropriate score that best describes the present state of the wetland. It is appropriate to "double check" and average scores. In some instances, the scores can be viewed as a habitat alteration continuum, from very high to very low or no disturbance. **The Rater may check one or several of these possible disturbances, yet still determine that the natural habitat is intact.**

3

Check all that are observed present in or near the wetland.

<input checked="" type="checkbox"/>	Mowing	<input type="checkbox"/>	Herbaceous layer/aquatic bed removal
<input type="checkbox"/>	Grazing (cattle, sheep, pigs, etc.)	<input type="checkbox"/>	Sedimentation
<input type="checkbox"/>	Clearcutting	<input checked="" type="checkbox"/>	Dredging
<input type="checkbox"/>	Selective cutting	<input type="checkbox"/>	Farming
<input checked="" type="checkbox"/>	Woody debris removal	<input type="checkbox"/>	Nutrient enrichment, e.g. nuisance algae
<input checked="" type="checkbox"/>	Toxic pollutants	<input type="checkbox"/>	Other (specify)
<input type="checkbox"/>	Shrub/sapling removal	<input type="checkbox"/>	Other (specify)

Circle one answer. Have any of the disturbances identified above caused or appeared to cause more than trivial alterations to the wetland's natural habitat, or have occurred so far in the past that current habitat should be considered to be "natural."?

YES

Assign a score 1, 3 or 6, or an intermediate score, depending on degree of recovery from the disturbance.

NO

Assign a score of 9 since there are no or no apparent modifications.

NOT SURE

Double check "none or none apparent" and "recovered" and assign a score of 7.5.

Select one score or double check adjoining numbers and average the score.

9pts	NONE OR NONE APPARENT. There are no alterations, or no alterations that are apparent to the Rater.	<input type="checkbox"/>
6pts	RECOVERED. The wetland appears to have recovered from past alterations.	<input type="checkbox"/>
3pts	RECOVERING. The wetland appears to be in the process of recovering from past alterations.	<input checked="" type="checkbox"/>
1pt	RECENT OR NO RECOVERY. The alterations have occurred recently, and/or the wetland has not recovered from past alterations, and/or the alterations are ongoing.	<input type="checkbox"/>

Metric 5. Special wetland communities. Maximum 10 points. Assign or deduct points if wetland has the feature described. Refer to Narrative Rating for guidance. No wetland can receive more than 10 points even if multiple categories are applicable.

score

0

<input type="checkbox"/>	Bog (10 pts)	<input type="checkbox"/>	Lake plains sand prairies (Oak Openings) (10 pts)
<input type="checkbox"/>	Fen (10 pts)	<input type="checkbox"/>	Relict wet prairies (10 pts)
<input type="checkbox"/>	Old Growth Forest (10 pts)	<input type="checkbox"/>	Known occurrence of threatened/endangered species (10 pts)
<input type="checkbox"/>	Mature Forested Wetland (5 pts)	<input type="checkbox"/>	Significant migratory songbird/waterfowl habitat (10 pts)
<input type="checkbox"/>	Coastal wetlands, unrestricted hydrology (10 pts)	<input type="checkbox"/>	Category 1 wetlands (See Narrative Rating #5) (-10 pts)
<input type="checkbox"/>	Coastal wetlands, restricted hydrology (5 pts)	<input type="checkbox"/>	

245

subtotal

24.5

subtotal from previous page

Metric 6. Vegetation, Interspersion, and Microtopography. Maximum 20 points.		
6a. Wetland Vegetation Communities. Check each community present <u>both vertically and horizontally</u> within the wetland with an area of at least 0.1hectares or 1000m ² (0.2471 acres). Assign a score of 0 to 3 using Tables 3, Table 4 or Table 5. Sum the scores for the classes present.		2
	Aquatic Bed. Includes areas of wetlands dominated by plants that grow principally on or below the surface of the water for most of the growing season in most years. Floating aquatic species like duckweed (<i>Lemna</i> spp., <i>Spirodela</i> spp.) are excluded from definition of "aquatic bed." Aquatic beds often occur as a distinct zone as an "understory" below shrubs or trees.	0
	Emergent. Includes areas of wetlands dominated by erect, rooted, herbaceous hydrophytes, excluding mosses and lichens. This vegetation is present for most of the growing season in most years. Common names for emergent communities include marsh, wet meadow, wet prairie, sedge meadow, fens, prairie pothole, and bluejoint slough.	1
	Shrub. Includes areas of wetlands dominated by woody vegetation less than 6m (20 ft) tall. The plant species include true shrubs, young trees, or trees or shrubs that are small or stunted because of environmental conditions. Shrub wetlands may represent a successional stage leading to a forested wetland or they may be relatively stable plant communities.	1
	Forested. Includes wetlands or areas of wetlands characterized by woody vegetation greater than 6m (20ft) or taller. Forested wetlands have an overstory of trees and often contain an understory of young trees and shrubs and an herbaceous layer, although the young tree/shrub and herbaceous layers can be largely missing from some types of forested wetlands. Some forested wetlands are defined as "vernal pools" in OAC Rule 3745-1-50.	0
	Mudflats. The "mudflat" class is equivalent to the "unconsolidated bottom/mud" class/subclass (PUB ₃) described in Cowardin et al. (1979) and includes areas of wetlands characterized by exposed or shallowly inundated substrates with vegetative cover less than 30%.	0
	Open water. The "open water" class is equivalent to the "open water - unknown bottom" class in Cowardin et al. (1979) and includes areas re 1) inundated, 2) unvegetated, and 3) and "open", i.e. there is no "canopy" of any type of vegetation.	0
	Other (See User's Manual)	0

Table 3. Use this table to assign a cover score for Metric 6a to each of the vegetation communities identified on the preceding page. Refer to Table 6 for narrative descriptions of what "low," "moderate," and "high" quality mean.

Cover scale	Description
0	the vegetation community is either, 1) absent from wetland, or 2) comprises less than 0.1ha (0.2471 acres) of contiguous area within the wetland
1	vegetation community is present and either, 1) comprises a small part of the wetland's vegetation and is of low or moderate quality, or 2) if it comprises a significant part of the wetland's vegetation, the community is of low quality
2	the vegetation community is present and either, 1) comprises a significant part of the wetland's vegetation and is of moderate quality, or 2) the vegetation community comprises a small part of the wetland's vegetation but is of high quality
3	the vegetation community is of high quality and comprises a significant part, or more, of the wetland's vegetation.

Table 4. Use this table in conjunction with Table 5 to determine what is a "low," "moderate," or "high" quality community.

narrative	description
low	low species diversity and/or a predominance of non-native or disturbance tolerant native species
moderate	native species are the dominant component of the vegetation, although non-native or disturbance tolerant native species can also be present, and species diversity is moderate to moderately high, but generally without the presence of rare, threatened, or endangered species
high	a predominance of native species, with non-native species absent or virtually absent, and high species diversity and sometimes, but not always, the presence of rare, threatened or endangered species.

Table 5. Mudflat and open water community cover scale.

0	Absent <0.1ha (0.247 acres)
1	Low 0.1 to <1ha (0.247 to 2.47 acres)
2	Moderate 1ha to <4ha (2.47 to 9.88 acres)
3	High 4ha (9.88 acres) or more

26.5

subtotal

26.5

subtotal from previous page

6b. Horizontal (plan view) interspersions. Select only one and assign score. Evaluate the wetland from a "plan view," i.e. as if the looking down upon it. See Figure 1.		1
5pts	HIGH. Wetland has a high degree of interspersions.	
4pts	MODERATELY HIGH. Wetland has a moderately high degree of interspersions.	
3pts	MODERATE. Wetland has a moderate degree of interspersions.	
2pts	MODERATELY LOW. Wetland has a moderately low degree of interspersions.	
1pt	LOW. Wetland has a low degree of interspersions.	✓
0pts	NONE. Wetland has no plan view interspersions.	

6c. Coverage of Invasive Plant Species. Refer to Table 1 on Page 7 for list. Select only one and assign score.		-3
-5pts	Extensive. >75% areal cover of invasive species	
-3pts	Moderate 25-75% areal cover of invasive species	✓
-1pt	Sparse. 5-25% areal cover of invasive species	
0pts	Nearly absent. <5% areal cover of invasive species	
1pt	Absent.	

6d. Microtopography. Check each feature present in the wetland. Assign cover score of 0 to 3 using Table 6. Evaluate various microtopographic habitat features often present in wetlands.		3
Vegetated hummocks and tussocks.		0
Coarse woody debris >15cm (6in) in diameter		1
Standing dead trees >25cm (10in) diameter at breast height		0
Amphibian breeding habitat, e.g. vernal pools with standing water of sufficient duration and depth to support reproduction, or habitat for frog reproduction.		2

Table 6. Cover scale for microtopographic habitat features.

microtopographic habitat quality	narrative description
0	feature is absent or functionally absent from the wetland
1	feature is present in the wetland in very small amounts or if more common, of low quality
2	feature is present in moderate amounts, but not of highest quality, or in small amounts of highest quality
3	present in moderate or greater amounts and of highest quality

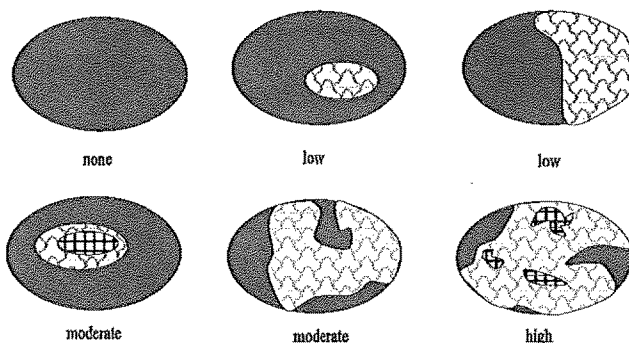


Figure 1. Hypothetical wetlands for estimating degree of interspersions.

27.5

GRAND TOTAL

End of Quantitative Rating. Complete Categorization Worksheets.

Refer to the most recent ORAM Score Calibration Report for the scoring breakpoints between wetland categories at the following address: <http://www.epa.ohio.gov/dsw/401/index.aspx>.

ORAM Summary Worksheet

		circle answer or insert score	Result
Narrative Rating	Question 1. Critical Habitat	YES <input type="radio"/> NO <input checked="" type="radio"/>	If yes, Category 3.
	Question 2. Threatened or Endangered Species	YES <input type="radio"/> NO <input checked="" type="radio"/>	If yes, Category 3.
	Question 3. High Quality Natural Wetland	YES <input type="radio"/> NO <input checked="" type="radio"/>	If yes, Category 3.
	Question 4. Significant bird habitat	YES <input type="radio"/> NO <input checked="" type="radio"/>	If yes, Category 3.
	Question 5. Category 1 Wetlands	YES <input type="radio"/> NO <input checked="" type="radio"/>	If yes, Category 1.
	Question 6. Bogs	YES <input type="radio"/> NO <input checked="" type="radio"/>	If yes, Category 3.
	Question 7. Fens	YES <input type="radio"/> NO <input checked="" type="radio"/>	If yes, Category 3.
	Question 8a. Old Growth Forest	YES <input type="radio"/> NO <input checked="" type="radio"/>	If yes, Category 3.
	Question 8b. Mature Forested Wetland	YES <input type="radio"/> NO <input checked="" type="radio"/>	If yes, evaluate for Category 3; may also be 1 or 2.
	Question 9b. Lake Erie Wetlands - Restricted	YES <input type="radio"/> NO <input checked="" type="radio"/>	If yes, evaluate for Category 3; may also be 1 or 2.
	Question 9d. Lake Erie Wetlands - Unrestricted.	YES <input type="radio"/> NO <input checked="" type="radio"/>	If yes, Category 3
	Question 9e. Lake Erie Wetlands - Unrestricted with invasive plants	YES <input type="radio"/> NO <input checked="" type="radio"/>	If yes, evaluate for Category 3; may also be 1 or 2.
Question 10. Oak Openings	YES <input type="radio"/> NO <input checked="" type="radio"/>	If yes, Category 3	
Question 11. Relict Wet Prairies	YES <input type="radio"/> NO <input checked="" type="radio"/>	If yes, evaluate for Category 3; may also be 1 or 2.	
Quantitative Rating	Metric 1. Size		2
	Metric 2. Buffers and surrounding land use		1
	Metric 3. Hydrology		14.5
	Metric 4. Habitat		7
	Metric 5. Special Wetland Communities		0
	Metric 6. Plant communities, interspersed, microtopography		3
	TOTAL SCORE Consult most recent score calibration report at http://www.epa.ohio.gov/dsw/401/index.aspx to determine the wetland's category based on its quantitative score	27.5	Category based on score breakpoints 1

Complete Wetland Categorization Worksheet.

Wetland Categorization Worksheet

Choices	Circle one	Evaluation of Categorization Result of ORAM
Did you answer "Yes" to any of the following questions: Narrative Rating Nos. 2, 3, 4, 6, 7, 8a, 9d, 10	YES Wetland is categorized as a Category 3 wetland	<input checked="" type="radio"/> NO Is quantitative rating score <i>less</i> than the Category 2 scoring threshold (<i>excluding</i> gray zone)? If yes, reevaluate the category of the wetland using the narrative criteria in OAC Rule 3745-1-54(C) and biological and/or functional assessments to determine if the wetland has been over-categorized by the ORAM
Did you answer "Yes" to any of the following questions: Narrative Rating Nos. 1, 8b, 9b, 9e, 11	YES Wetland should be evaluated for possible Category 3 status	<input checked="" type="radio"/> NO Evaluate the wetland using the 1) narrative criteria in OAC Rule 3745-1-54(C) and 2) the quantitative rating score. If the wetland is determined to be a Category 3 wetland using either of these, it should be categorized as a Category 3 wetland. Detailed biological and/or functional assessments may also be used to determine the wetland's category.
Did you answer "Yes" to Narrative Rating No. 5	YES Wetland is categorized as a Category 1 wetland	<input checked="" type="radio"/> NO Is quantitative rating score <i>greater</i> than the Category 2 scoring threshold (<i>including</i> any gray zone)? If yes, reevaluate the category of the wetland using the narrative criteria in OAC Rule 3745-1-54(C) and biological and/or functional assessments to determine if the wetland has been under-categorized by the ORAM
Does the quantitative score fall within the scoring range of a Category 1, 2, or 3 wetland?	<input checked="" type="radio"/> YES Wetland is assigned to the appropriate category based on the scoring range	<input type="radio"/> NO If the score of the wetland is located within the scoring range for a particular category, the wetland should be assigned to that category. In all instances however, the narrative criteria described in OAC Rule 3745-1-54(C) can be used to clarify or change a categorization based on an quantitative score.
Does the quantitative score fall with the "gray zone" for Category 1 or 2 or Category 2 or 3 wetlands?	YES Wetland is assigned to the higher of the two categories or assigned to a category based on detailed assessments and the narrative criteria	<input checked="" type="radio"/> NO Rater has the option of assigning the wetland to the higher of the two categories or to assign a category based on the results of a nonrapid wetland assessment method, e.g. functional assessment, biological assessment, etc. and a consideration of the narrative criteria in OAC rule 3745-1-54(C).
Does the wetland otherwise exhibit <i>moderate</i> OR <i>superior</i> hydrologic OR habitat, OR recreational functions AND the wetland was <i>not</i> categorized as a Category 2 wetland (in the case of moderate functions) or a Category 3 wetland (in the case of superior functions) by this method?	YES Wetland was undercategorized by this method. A written justification for recategorization should be provided on Background Information Form	<input checked="" type="radio"/> NO Wetland is assigned to category as determined by the ORAM. A wetland may be undercategorized using this method, but still exhibit one or more superior functions, e.g. a wetland's biotic communities may be degraded by human activities, but the wetland may still exhibit superior hydrologic functions because of its type, landscape position, size, local or regional significance, etc. In this circumstance, the narrative criteria in OAC Rule 3745-1-54(C)(2) and (3) are controlling, and the under-categorization should be corrected. A written justification with supporting reasons or information for this determination should be provided.

Final Category

Choose one	<input checked="" type="radio"/> Category 1	<input type="radio"/> Category 2	<input type="radio"/> Category 3
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End of Ohio Rapid Assessment Method for Wetlands.

ATTACHMENT D

COLOR PHOTOGRAPHS

**SOUTH DAYTON DUMP AND LANDFILL
CITY OF DAYTON, MONTGOMERY COUNTY, OHIO**



1. Typical herbaceous upland field on the Dayton landfill.



2. Uplands herbaceous field along main access road to site.

**SOUTH DAYTON DUMP AND LANDFILL
CITY OF DAYTON, MONTGOMERY COUNTY, OHIO**



3. Dense bush honeysuckle along perimeter of site.



4. Upland herbaceous areas interspersed with patchy upland scrub thicket on the landfill surface.

**SOUTH DAYTON DUMP AND LANDFILL
CITY OF DAYTON, MONTGOMERY COUNTY, OHIO**



5. Wetland referred to as "Small Pond".



6. Wetland referred to as "Small Pond".

**SOUTH DAYTON DUMP AND LANDFILL
CITY OF DAYTON, MONTGOMERY COUNTY, OHIO**



7. Small paved area northwest of "Large Pond".



8. Chute leading to "Large Pond".

**SOUTH DAYTON DUMP AND LANDFILL
CITY OF DAYTON, MONTGOMERY COUNTY, OHIO**



9. Wetland referred to as "Large Pond".



10. Poison ivy and other wooded vegetation at the south end of the Large Pond.

**SOUTH DAYTON DUMP AND LANDFILL
CITY OF DAYTON, MONTGOMERY COUNTY, OHIO**



11. Emergent wetland on fill terrace adjoining north side of Quarry Pond.



12. Uplands on fill terrace north of Quarry Pond.

**SOUTH DAYTON DUMP AND LANDFILL
CITY OF DAYTON, MONTGOMERY COUNTY, OHIO**



13. Northern side of Quarry Pond.



14. Looking southwest at Quarry Pond. Note several upland islands occur in the Quarry Pond.